AMENDATORY SECTION (Amending WSR 96-02-058, filed 12/29/95, effective 1/29/96)

WAC 173-204-100 Authority and purpose. (1) This chapter is promulgated under the authority of chapter 90.48 RCW, the Water Pollution Control Act; chapter 70.105D RCW, the Model Toxics Control Act; chapter 90.70 RCW, the Puget Sound Water Quality Authority Act; chapter 90.52 RCW, the Pollution Disclosure Act of 1971; chapter 90.54 RCW, the Water Resources Act of 1971; and chapter 43.21C RCW, the state Environmental Policy Act, to establish marine, low salinity and freshwater surface sediment management standards for the state of Washington.

(2) The purpose of this chapter is to reduce and ultimately eliminate adverse effects on biological resources and significant health threats to humans from surface sediment contamination by:

(a) Establishing standards for the quality of surface sediments;

(b) Applying these standards as the basis for management and reduction of pollutant discharges; and

(c) Providing a management and decision process for the cleanup of contaminated sediments.

(3) Part III, Sediment quality standards of this chapter provides chemical concentration criteria, biological effects criteria, human health criteria, and other toxic, radioactive, biological, or deleterious substances criteria which identify surface sediments that have no adverse effects, including no acute or chronic adverse effects on biological resources and no significant health risk to humans, as defined in this regulation. The sediment quality standards provide a regulatory and management goal for the quality of sediments throughout the state.

(4) The sediment criteria of WAC 173-204-320 through 173-204-340 shall constitute surface sediment quality standards and be used to establish an inventory of surface sediment sampling stations where the sediments samples taken from these stations are determined to pass or fail the applicable sediment quality standards.

(5) Part IV, Sediment source control standards of this chapter shall be used as a basis for controlling the effects of point and nonpoint source discharges to sediments through the National Pollutant Discharge Elimination System (NPDES) federal permit program, state water quality management permit programs, issuance of administrative orders or other means determined appropriate by the department. The source control standards establish discharge sediment monitoring requirements and criteria for establishment and maintenance of sediment impact zones.

(6) Part V, Sediment cleanup standards of this chapter establishes administrative procedural requirements and criteria to identify, screen, rank and prioritize, and cleanup contaminated

surface sediment sites. The sediment cleanup standards of WAC 173-204-500 through 173-204-590 shall be used pursuant to ((~~authorities~~)) authority established under chapter((~~s 90.48 and~~)) 70.105D RCW.

(7) This chapter establishes and defines a goal of minor adverse effects as the maximum level of sediment contamination allowed in sediment impact zones under the provisions of Part IV, Sediment source control standards and as the cleanup screening levels for identification of sediment cleanup sites and as the minimum cleanup levels to be achieved in all cleanup actions under Part V, Sediment cleanup standards.

(8) Local ordinances establishing requirements for the designation and management of marine, low salinity and freshwater sediments shall not be less stringent than this chapter.

Note: All codes, standards, statutes, rules or regulations cited in this chapter are available for inspection at the Department of Ecology, P.O. Box 47703, Olympia, Washington 98504-7703.

AMENDATORY SECTION (Amending Order 90-41, filed 3/27/91, effective 4/27/91)

WAC 173-204-110 Applicability. (1) The sediment quality standards of WAC 173-204-300 through 173-204-315, and 173-204-350, and the sediment cleanup standards of WAC 173-204-500 through 173-204-580 shall apply to all surface sediments.

(2) The sediment quality standards of WAC 173-204-320, 173-204-330, and 173-204-340 and the applicable sediment cleanup standards of WAC 173-204-560 shall apply to marine, low salinity and freshwater surface sediments, respectively.

(3) The source control standards of WAC 173-204-400 through 173-204-420 shall apply to each person's actions which exposes or resuspends surface sediments which exceed, or otherwise cause or potentially cause surface sediments to exceed, the applicable standards of WAC 173-204-320 through 173-204-340.

(4) The sediment recovery zone standards of WAC 173-204-590 shall apply to each person's cleanup action decision made pursuant to WAC 173-204-570 and 173-204-580 where the selected cleanup action leaves in place marine, low salinity, or freshwater sediments that exceed the applicable sediment ((~~quality~~)) cleanup standards of WAC ((~~173-204-320 through 173-204-340~~)) 173-204-560.

(5) The sediment quality standards of WAC 173-204-320 through 173-204-340 shall not apply:

(a) Within a sediment impact zone as authorized by the department under WAC 173-204-415; or

(b) Within a sediment recovery zone as authorized by the department under WAC 173-204-590; or

(c) To particulates suspended in the water column; or

(d) To particulates suspended in a permitted effluent discharge.

(6) Nothing in this chapter shall constrain the department's authority to make appropriate sediment management decisions on a case-specific basis using best professional judgment and latest scientific knowledge for cases where the standards of this chapter are reserved or standards are not available.

AMENDATORY SECTION (Amending WSR 96-02-058, filed 12/29/95, effective 1/29/96)

WAC 173-204-130 Administrative policies. The department shall implement this chapter in accordance with the following policies:

(1) The department shall seek to implement, and as necessary modify this chapter to protect biological resources and human health consistent with WAC 173-204-100(2). To implement the intent of this subsection, the department shall use methods that accurately reflect the latest scientific knowledge consistent with the definitions contained in WAC 173-204-200 ((~~(14) and (15)~~)), as applicable.

(2) At the interface between surface sediments, groundwater or surface water, the applicable standards shall depend on which beneficial use is or could be adversely affected, as determined by the department. If beneficial uses of more than one resource are affected, the most restrictive standards shall apply.

(3) It shall be the goal of the department to modify this chapter so that methods such as confirmatory biological tests, sediment impact zone models, use of contaminated sediment site ranking models, etc., continue to accurately reflect the latest scientific knowledge as established through ongoing validation and refinement.

(4) Any person or the department may propose an alternate technical method to replace or enhance the application of a specific technical method required under this chapter. Using best professional judgment, the department shall provide advance review and approval of any alternate technical method proposed prior to its application. Application and use of alternate technical methods shall be allowed when the department determines that the technical merit of the resulting decisions will improve the department's ability to implement and meet the intent of this chapter as described in WAC 173-204-100(2), and will remain consistent with the scientific intent of definitions contained in WAC 173-204-200 ((~~(14) and (15)~~)). The department shall maintain a record of the department's decisions concerning application for use of alternate technical methods pursuant to this subsection. The record shall be made available to the public on request.

(5) Intergovernmental coordination. The department shall ensure appropriate coordination and consultation with federally recognized Indian tribes and local, state, and federal agencies to provide information on and to implement this chapter.

(6) The department shall conduct an annual review of this chapter, and modify its provisions every three years, or as necessary. Revision to this chapter shall be made pursuant to the procedures established within chapter 34.05 RCW, the Administrative Procedure Act.

(7) Review of scientific information. When evaluating this chapter for necessary revisions, the factors the department shall consider include:

(a) New or additional scientific information which is available relating surface sediment chemical quality to acute or chronic adverse effects on biological resources as defined in WAC 173-204-200 ((~~(1)~~)) (2) and ((~~(7)~~)) (12);

(b) New or additional scientific information which is available relating human health risk to marine, low salinity, or freshwater surface sediment chemical contaminant levels;

(c) New or additional scientific information which is available relating levels of other toxic, radioactive, biological and deleterious substances in marine, low salinity, or freshwater sediments to acute or chronic adverse effects on biological resources, or to a significant health risk to humans;

(d) New state or federal laws which have established environmental or human health protection standards applicable to surface sediment; or

(e) Scientific information which has been identified for addition, modification or deletion by a scientific review process established by the department.

(8) Public involvement and education. The goal of the department shall be to provide timely information and meaningful opportunities for participation by the public in the annual review conducted by the department under subsection (6) of this section, and any modification of this chapter. To meet the intent of this subsection the department shall:

(a) Provide public notice of the department's decision regarding the results of its annual review of this chapter, including:

(i) The department's findings for the annual review factors identified in subsection (7) of this section;

(ii) The department's decision regarding the need for modification of this chapter based on its annual review; and

(iii) Identification of a time period for public opportunity to comment on the department's findings and decisions pursuant to this subsection.

(b) Provide public notice by mail or by additional procedures determined necessary by the department which may include:

(i) Newspaper publication;

(ii) Other news media;

(iii) Press releases;

(iv) Fact sheets;

(v) Publications;

(vi) Any other method as determined by the department.

(c) Conduct public meetings as determined necessary by the department to educate and inform the public regarding the department's annual review determinations and decisions.

(d) Comply with the rule making and public participation requirements of chapter 34.05 RCW, the Administrative Procedure Act, for any revisions to this chapter.

(9) Test sediments evaluated for compliance with the sediment quality standards of WAC 173-204-320 through 173-204-340 and/or the sediment impact zone maximum criteria of WAC 173-204-420 and/or the sediment cleanup ((~~screening levels criteria~~)) standards of WAC ((~~173-204-520~~)) 173-204-560 shall be sampled and analyzed using the Puget Sound Protocols or other methods approved by the department. Determinations made pursuant to this chapter shall be based on sediment chemical and/or biological data that were developed using an appropriate quality assurance/quality control program, as determined by the department.

(10) The statutory authority for decisions under this chapter shall be clearly stated in the decision documents prepared pursuant to this chapter. The department shall undertake enforcement actions consistent with the stated authority under which the action is taken. The process for judicial review of these decisions shall be pursuant to the statutes under which the action is being taken.

(11) When the department identifies this chapter as an applicable, or relevant and appropriate requirement for a federal cleanup action under the Comprehensive Environmental Response, Compensation and Liability Act, the department shall identify the entire contents of this chapter as the appropriate state requirement.

AMENDATORY SECTION (Amending WSR 96-02-058, filed 12/29/95, effective 1/29/96)

WAC 173-204-200 Definitions. In cases where a definition does not exist in this chapter, the definitions in chapter 173-340 WAC will apply unless the context indicates otherwise. For the purpose of this chapter, the following definitions shall apply:

(1) "Active cleanup action" means those engineered controls requiring physical construction to meet sediment cleanup standards. Active cleanup actions include dredging, capping, treatment, and enhanced natural recovery. Passive cleanup actions such as monitored natural recovery and institutional controls are not active cleanup actions for purposes of sediment cleanup only.

(2) "Acute" means measurements of biological effects using surface sediment bioassays conducted for time periods that are relatively short in comparison to the life cycle of the test organism. Acute effects may include mortality, larval abnormality, or other endpoints determined appropriate by the department.

((~~(2)~~)) (3) "Amphipod" means crustacean of the Class Amphipoda, e.g., Rhepoxynius abronius, Ampelisca abdita, ((~~or~~)) Eohaustorius estuarius, or Hyalella azteca.

(4) "Anthropogenic" means created by humans or caused by human activity.

(5) "Applicable local, state and federal laws" means all legally applicable requirements and those requirements that the department determines, based on the criteria in WAC 173-340-710, are relevant and appropriate requirements.

((~~(3)~~)) (6) "Appropriate biological tests" means only tests designed to measure directly, or through established predictive capability, biologically significant adverse effects to the established or potential benthic or aquatic resources at a given location, as determined by rule by the department.

((~~(4)~~)) (7) "Beneficial uses" means uses of waters of the state which include ((~~but are not limited to~~)) use for domestic, stock watering, industrial, commercial, agricultural, irrigation, mining, fish and wildlife maintenance and enhancement, recreation, generation of electric power, and preservation of environmental and aesthetic values, and all other uses compatible with the enjoyment of the public waters of the state.

((~~(5)~~)) (8) "Beneficial reuse" means reuse of sediment, or a separated portion of the sediment (such as the gravel fraction), with low levels of contamination that utilizes the physical characteristics and properties of the sediment to replace another natural uncontaminated material without requiring use of engineered or institutional controls to protect human health or the environment. Examples of beneficial reuse include habitat restoration or enhancement, strip mine reclamation, landfill cover material, aggregate in asphalt or concrete, or use of organic fines in manufactured topsoil.

(9) "Best management practices" or "BMPs" means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of surface sediments of the state as approved by the department. BMPs ((~~also~~)) include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or water disposal, or drainage from raw material storage.

((~~(6)~~)) (10) "Bioassay" means a test procedure or biological assessment that measures the response of living plants, animals, or tissues to a sediment sample.

((~~(7)~~)) (11) "Biologically active zone" means the sediment depth determined by the department where the species critical to the function, diversity, and integrity of the benthic community are located. Metrics such as biomass and abundance may be used to define the vertical extent of the biologically active zone. These species can include endemic and keystone animals, plants, or other species. Abiotic factors such as groundwater upwelling, salt wedges, water temperature, dissolved oxygen, and hyporheic flow can affect the vertical distribution of organisms.

(12) "Chronic" means measurements of biological effects using sediment bioassays conducted for, or simulating, prolonged exposure periods of not less than one complete life cycle, evaluations of indigenous field organisms for long-term effects, assessment of biological effects resulting from bioaccumulation and biomagnification, and/or extrapolated values or methods for simulating effects from prolonged exposure periods. Chronic effects may include mortality, reduced growth, impaired

reproduction, histopathological abnormalities, adverse effects to birds and mammals, or other endpoints determined appropriate by the department.

((~~(8)~~)) (13) "Cleanup action" means any actions taken at a sediment site or sediment cleanup unit to eliminate, render less toxic, stabilize, contain, immobilize, isolate, treat, destroy, or remove contaminated sediment to achieve sediment cleanup standards.

(14) "Cleanup screening level" means the maximum allowed concentration of any contaminant and level of biological effects permissible at the site or sediment cleanup unit per procedures in WAC 173-204-560(4) after completion of the cleanup action. Cleanup screening levels are also used to identify and assess the hazard of sites under WAC 173-204-510 and 173-204-520.

(15) "Contaminant" means any hazardous substance or other toxic, radioactive, biological, or deleterious substance that does not occur naturally or occurs at greater than natural background levels.

(16) "Contaminated sediment" means ((~~surface~~)) sediments ((~~designated under the procedures of WAC 173-204-310 as~~)) exceeding the applicable sediment quality standards ((~~of~~)) in WAC 173-204-320 through 173-204-340 or the applicable criteria in WAC 173-204-560.

((~~(9)~~)) (17) "Control sediment sample" means a surface sediment sample which is relatively free of contamination and is physically and chemically characteristic of the area from which bioassay test animals are collected. Control sediment sample bioassays provide information concerning a test animal's tolerance for stress due to transportation, laboratory handling, and bioassay procedures. Control sediment samples cannot exceed the applicable sediment quality standards of WAC 173-204-320 through 173-204-340 or the applicable criteria in WAC 173-204-560.

((~~(10)~~)) (18) "Department" means the department of ecology.

((~~(11)~~)) (19) "Enhanced natural recovery" means a remedy that uses human intervention to accelerate the process of natural recovery. An example of enhanced natural recovery is the placement of a thin clean layer of sediment over an area of contaminated sediment to naturally mix with the contaminated sediment and reduce the contaminant concentrations or toxicity followed by a period of monitoring to determine the effectiveness.

(20) "Freshwater sediments" means surface sediments in which the sediment pore water contains less than or equal to 0.5 parts per thousand salinity.

((~~(12)~~)) (21) "Include" means included, but not limited to.

(22) "Low salinity sediments" means surface sediments in which the sediment pore water contains greater than 0.5 parts per thousand salinity and less than 25 parts per thousand salinity.

((~~(13)~~)) (23) "Marine finfish rearing facilities" ((~~shall~~)) means those private and public facilities located within state waters where finfish are fed, nurtured, held, maintained, or reared to reach the size of release or for market sale.

((~~(14)~~)) (24) "Marine sediments" means surface sediments in which the sediment pore water contains 25 parts per thousand salinity or greater.

((~~(15)~~)) (25) "Minor adverse effects" means a level of effects

that:

(a) Has been determined by rule by the department, except in cases subject to WAC 173-204-110(6); and

(b) Meets the following criteria:

(i) An acute or chronic adverse effect to biological resources as measured by a statistically and biologically significant response relative to reference in no more than one appropriate biological test as defined in WAC 173-204-200((~~(3)~~)) (6); or

(ii) A statistically and biologically significant response that is significantly elevated relative to reference in any appropriate biological test as defined in WAC 173-204-200((~~(3)~~)) (6); or

(iii) Biological effects per (b)(i) or (ii) of this subsection as predicted by exceedance of an appropriate chemical or other deleterious substance standard, except where the prediction is overridden by direct biological testing evidence pursuant to (b)(i) and (ii) of this subsection; and

(c) Does not result in significant human health risk as predicted by exceedance of an appropriate chemical, biological, or other deleterious substance standard.

((~~(16)~~)) (26) "Monitored natural recovery" means a form of natural recovery that includes regular monitoring of sediment quality, tissue, and biota to assess the effectiveness of natural recovery to restore sediment quality.

(27) "Natural background" means the concentration of a hazardous substance consistently present in the environment that has not been influenced by localized human activities. For example, several metals and radionuclides naturally occur in the bedrock, sediment, and soil of Washington state due solely to the geologic processes that formed these materials and the concentration of these hazardous substances would be considered natural background. Also, low concentrations of some particularly persistent organic compounds such as polychlorinated biphenyls (PCBs) can be found in surficial soils and sediment throughout much of the state due to global distribution of these hazardous substances. These low concentrations would be considered natural background. Similarly, concentrations of various radionuclides that are present at low concentrations throughout the state due to global distribution of fallout from bomb testing and nuclear accidents would be considered natural background.

(28) "Natural recovery" means physical, chemical or biological processes that act, without human intervention, to reduce the toxicity or concentration of contaminated sediment. The most common form of natural recovery is the natural deposition of a layer of clean sediment over an area of contaminated sediment resulting in burial of contaminated sediment below the biologically active zone. The natural process of sediment mixing, and degradation of some contaminants, such as polycyclic aromatic hydrocarbons, can also contribute to natural recovery.

(29) "No adverse effects" means a level of effects that:

(a) Has been determined by rule by the department, except in cases subject to WAC 173-204-110(6); and

(b) Meets the following biological criteria:

(i) No acute or chronic adverse effects to biological resources as measured by a statistically and biologically significant response relative to reference in any appropriate biological test as defined in WAC 173-204-200((~~(3)~~)) (6); and

(ii) No acute or chronic adverse biological effect per (b)(i) of this subsection as predicted by exceedance of an appropriate chemical or other deleterious substance standard, except where the prediction is overridden by direct biological testing evidence pursuant to (b)(i) of this subsection; and

(iii) Does not result in significant human health risk as predicted by exceedance of an appropriate chemical, biological, or other deleterious substance standard.

((~~(17)~~)) (30) "Nonanthropogenically affected" means not affected by humans or caused by human activities.

(31) "Other toxic, radioactive, biological, or deleterious substances" means contaminants which are not specifically identified in the sediment quality standards chemical criteria of WAC 173-204-320 through 173-204-340 (e.g., organic debris, tributyltin, DDT, etc.).

((~~(18)~~)) (32) "Person" means an individual, firm, corporation, association, partnership, consortium, joint venture, commercial entity, ((~~industry, private corporation, port district, special purpose district, irrigation district,~~)) unit of local government, state government agency, federal government agency, or Indian tribe((~~, or any other entity whatsoever~~)).

((~~(19)~~)) (33) "Point of compliance" means the locations within a site or sediment cleanup unit where sediment cleanup levels must be met.

(34) "Practicable" means able to be completed in consideration of environmental effects, technical feasibility and cost.

((~~(20)~~)) (35) "Practical quantitation limit" means the lowest concentration that can be reliably measured within specified limits of precision, accuracy, representativeness, completeness, and comparability during routine laboratory operating conditions, using department approved methods. When the limit for an analytical method is higher than the concentrations based on protection of human health or the environment, the department may require the use of another method to lower the practical quantitation limit.

(36) "Puget Sound basin" or "Puget Sound" means:

(a) Puget Sound south of Admiralty Inlet, including Hood Canal and Saratoga Passage;

(b) The waters north to the Canadian border, including portions of the Strait of Georgia;

(c) The Strait of Juan de Fuca south of the Canadian border; and

(d) All the lands draining into these waters as mapped in water resources inventory areas numbers 1 through 19, set forth in water resources management program established pursuant to the Water Resources Act of 1971, chapter 173-500 WAC.

((~~(21)~~)) (37) "Puget Sound protocols" means *Puget Sound Estuary Program. 1986. As amended. Recommended Protocols for Measuring Selected Environmental Variables in Puget Sound, U.S.*

Environmental Protection Agency, Region 10, Seattle, WA (looseleaf).

((~~(22)~~)) (38) "Regional background" means the concentration of a contaminant within a department-defined geographic area that is primarily attributable to diffuse nonpoint sources, such as atmospheric deposition or storm water, not attributable to a specific source or release. Regional background is generally expected to be greater than or equal to natural background, and less than area background as that term is defined in WAC 173-340-200.

(39) "Reference sediment sample" means a surface sediment sample which serves as a laboratory indicator of a test animal's tolerance to important natural physical and chemical characteristics of the sediment, e.g., grain size, organic content. Reference sediment samples represent the nonanthropogenically affected background surface sediment quality of the sediment sample. Reference sediment samples cannot exceed the applicable sediment quality standards of WAC 173-204-320 through 173-204-340 or the applicable criteria of WAC 173-204-560.

((~~(23)~~)) (40) "Sediment" means particulate matter settled or present as particles on the bed or bottom of a body of water to which biota or humans may potentially be exposed, and the surface water is present in the water body for a minimum of six contiguous weeks on an annual basis and the sediment is located at or below the ordinary high water mark. Sediment includes particulate matter located in the biologically active zone or exposed to the water column by human activity (e.g., dredging), pore water flux, or other hydrological or natural action.

(41) "Sediment cleanup level" means the concentration or level of biological effects for a contaminant in sediment that is determined by the department to be protective of human health and the environment under the authority of chapter 70.105D RCW. The sediment cleanup level is established in accordance with the requirements in WAC 173-204-560(2).

(42) "Sediment cleanup objective" means the goal for protection of human health and the environment and is established under the authority of chapter 70.105D RCW. The sediment cleanup objective is established in accordance with the requirements in WAC 173-204-560(3). Sediment cleanup objectives are also used to identify and assess the hazard of sites under WAC 173-204-510 and 173-204-520.

(43) "Sediment cleanup standard" means a department approved chemical concentration, or level of biological effects, in sediment that must be met within a site or sediment cleanup unit. Establishing sediment cleanup standards requires specification of the following: The concentration or level of biological effects for a contaminant in sediment that is determined by the department to be protective of human health and the environment ("sediment cleanup levels"); the location on the site or sediment cleanup unit where those sediment cleanup levels must be attained ("points of compliance"); and additional regulatory requirements that apply to a cleanup action because of the type of action and/or the location of the site. These requirements are specified in applicable state

and federal laws and are generally established in conjunction with the selection of a specific cleanup action.

(44) "Sediment impact zone" means an area where the applicable sediment quality standards of WAC 173-204-320 through 173-204-340 are exceeded due to ongoing permitted or otherwise authorized wastewater, storm water, or nonpoint source discharges and authorized by the department within a federal or state wastewater or storm water discharge permit, or other formal department authorization.

((~~(24)~~)) (45) "Sediment quality standard" means chemical concentration criteria, biological effects criteria, other toxic, radioactive, biological, or deleterious substances criteria, and nonanthropogenically affected sediment quality criteria which are used to identify sediments that have no adverse effects on biological resources per procedures in WAC 173-204-320 through 173-204-340.

(46) "Sediment recovery zone" means an area ((~~where~~)) established by the department within a site or sediment cleanup unit where the department has determined cleanup actions cannot achieve the applicable sediment ((~~quality~~)) cleanup standards ((~~of WAC 173-204-320 through 173-204-340 are exceeded as a result of historical discharge activities, and authorized by the department as a result of a cleanup decision made pursuant to WAC 173-204-580, Cleanup action decision~~)) within ten years after the start of the cleanup action. Sediment recovery zones must meet the requirements in WAC 173-204-590 and be authorized by the department under WAC 173-204-580.

((~~(25)~~)) (47) "((~~Site~~)) Sediment cleanup unit((~~s~~))" means discrete subdivision(s) of ((~~an individual contaminated~~)) a sediment site ((~~that are being evaluated~~)) designated by the department for the purpose of ((~~establishing cleanup standards~~)) expediting cleanups. ((~~Site units are based on consideration of~~)) A sediment cleanup unit may be established based on unique ((~~locational~~)) chemical concentrations or parameters, environmental, spatial, or contaminant source characteristics, or other ((~~conditions~~)) methods determined appropriate by the department, e.g., development related cleanups, cleanup under piers, cleanup in eelgrass beds, and cleanup in navigational lanes.

((~~(26)~~)) (48) "Surface sediments" ((~~or "sediment(s)"~~)) means ((~~settled particulate matter~~)) sediment(s) located in the ((~~predominant~~)) biologically active ((~~aquatic~~)) zone((~~,~~)) or exposed to the water column((~~. Sediment(s) also includes settled particulate matter exposed by human activity (e.g., dredging) to the biologically active aquatic zone or to the water column.~~

~~(27)~~)) by human activity (e.g., dredging), pore water flux, or other hydrological or natural action.

(49) "Technically possible" means capable of being designed, constructed and implemented in a reliable and effective manner, regardless of cost.

(50) "Test sediment" means a sediment sample that is evaluated for compliance with the sediment quality standards of WAC 173-204-320 through 173-204-340 ((~~and/or~~)), the sediment impact zone maximum criteria of WAC 173-240-420, ((~~and/~~))or the ((~~cleanup~~

~~screening levels~~)) applicable criteria of WAC ((~~173-204-520~~)) 173-204-560.

AMENDATORY SECTION (Amending Order 90-41, filed 3/27/91, effective 4/27/91)

WAC 173-204-310 Sediment quality standards designation procedures. Any person may use these procedures to determine a sediment's designation using the applicable sediment quality standards of WAC 173-204-320 through 173-204-340. Any person who designates test sediments using the procedures of this section shall meet the sampling and testing plan requirements of WAC 173-204-600 and records management requirements of WAC 173-204-610. Test sediments designated using the procedures of this section shall be sampled and analyzed using the Puget Sound protocols or other methods approved by the department, and shall use an appropriate quality assurance/quality control program, as determined by the department. A sediment sample that passes the initial designation procedures is designated as complying with the applicable sediment quality standards of WAC 173-204-320 through 173-204-340, until such time as any person or the department confirms the sediment designation as failing the applicable sediment quality standards of WAC 173-204-320 through 173-204-340. A sediment sample that fails the initial designation procedures is designated as not complying with the applicable sediment quality standards of WAC 173-204-320 through 173-204-340, until such time as any person or the department confirms the sediment designation as passing the applicable sediment quality standards of WAC 173-204-320 through 173-204-340. A sediment sample that passes or fails the confirmatory designation procedures is designated as such under the procedures of WAC 173-204-310. Sediments shall be designated with the applicable sediment quality standards of WAC 173-204-320 through 173-204-340 as follows:

(1) Initial designation. Sediments that have been chemically analyzed for the applicable chemical concentration criteria of WAC 173-204-320 through 173-204-340 shall be designated as follows:

(a) Sediments with chemical concentrations equal to or less than all the applicable chemical and human health criteria are designated as having no adverse effects on biological resources, and not posing a significant health threat to humans, and pass the applicable sediment quality standards of WAC 173-204-320 through 173-204-340.

(b) Sediments with chemical concentrations which exceed any one applicable chemical or human health criterion in WAC 173-204-320 through 173-204-340 are designated as having adverse effects on biological resources or posing significant human health threats, and fail the sediment quality standards of WAC 173-204-320 through 173-204-340, pending confirmatory designation.

(2) Confirmatory designation. Any person or the department may confirm the designation of sediments which have either passed or failed initial designation procedures listed in subsection (1) of this section using the applicable biological testing of WAC 173-204-315, as required below. Sediment samples that pass all the required confirmatory biological tests are designated as passing the applicable sediment quality standards of WAC 173-204-320 through 173-204-340, notwithstanding the sediment's previous initial designation under subsection (1) of this section. Any sediment sample which fails any one of the required confirmatory biological tests shall be designated as failing the applicable sediment quality standards of WAC 173-204-320 through 173-204-340, notwithstanding the sediment's previous initial designation under subsection (1) of this section. The confirmatory biological test standards are described below.

(a) To confirm the designation of a sediment which either passed or failed any applicable chemical concentration criterion established in WAC 173-204-320 through 173-204-340, the sediment shall be tested for:

(i) Two of the acute effects biological tests described in the applicable standards of WAC 173-204-315; and

(ii) One of the chronic effects biological tests described in the applicable standards of WAC 173-204-315.

(b) Sediments with chemical concentrations which either passed or failed any applicable human health criterion of WAC 173-204-320 through 173-204-340 shall be eligible for confirmatory designation as follows: Reserved: The department shall determine on a case-by-case basis the criteria, methods, and procedures necessary to meet the intent of this chapter.

(3) Initial and confirmatory designation of sediments which contain other toxic, radioactive, biological, or deleterious substances. Sediments which contain other toxic, radioactive, biological, or deleterious substances, as defined in WAC 173-204-200((~~(16)~~)) (31), shall be designated by the department using the following procedures.

(a) The department shall:

(i) Identify individual contaminants of concern;

(ii) Identify appropriate and practicable sampling and analysis methodologies;

(iii) Identify test interpretation standards for initial and confirmatory designation; and

(iv) Identify acceptable levels of sediment contamination for sediments which contain other toxic, radioactive, biological, or deleterious substances.

(b) Where sediment containing other toxic, radioactive, biological or deleterious substances may also be contaminated by chemicals identified in WAC 173-204-320 through 173-204-340, the department shall require application of the appropriate tests and standards of WAC 173-204-320 through 173-204-340, as determined by the department, in addition to any requirements developed pursuant to (a) of this subsection.

(c) The department may use all or some of the sediment biological tests of WAC 173-204-320 through 173-204-340 to

designate sediments with other toxic, radioactive, biological or deleterious substances in cases where those tests are technically appropriate, as determined by the department.

AMENDATORY SECTION (Amending WSR 96-02-058, filed 12/29/95, effective 1/29/96)

WAC 173-204-320 Marine sediment quality standards. (1) Goal and applicability.

(a) The sediment quality standards of this section shall correspond to a sediment quality that will result in no adverse effects, including no acute or chronic adverse effects on biological resources and no significant health risk to humans.

(b) The marine sediment quality standards of this section shall apply to marine sediments located within Puget Sound as defined in WAC 173-204-200((~~(19)~~)) (36).

(c) Non-Puget Sound marine sediment quality standards. Reserved: The department shall determine on a case-by-case basis the criteria, methods, and procedures necessary to meet the intent of this chapter.

(2) Chemical concentration criteria. The chemical concentrations in Table I establish the marine sediment quality standards chemical criteria for designation of sediments.

(a) Where laboratory analysis indicates a chemical is not detected in a sediment sample, the detection limit shall be reported and shall be at or below the Marine Sediment Quality Standards chemical criteria value set in this table.

(b) Where chemical criteria in this table represent the sum of individual compounds or isomers, the following methods shall be applied:

(i) Where chemical analyses identify an undetected value for every individual compound/isomer then the single highest detection limit shall represent the sum of the respective compounds/isomers; and

(ii) Where chemical analyses detect one or more individual compound/isomers, only the detected concentrations will be added to represent the group sum.

(c) The listed chemical parameter criteria represent concentrations in parts per million, "normalized," or expressed, on a total organic carbon basis. To normalize to total organic carbon, the dry weight concentration for each parameter is divided by the decimal fraction representing the percent total organic carbon content of the sediment.

(d) The LPAH criterion represents the sum of the following "low molecular weight polynuclear aromatic hydrocarbon" compounds: Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, and Anthracene. The LPAH criterion is not the sum of the criteria values for the individual LPAH compounds as listed.

(e) The HPAH criterion represents the sum of the following

"high molecular weight polynuclear aromatic hydrocarbon" compounds: Fluoranthene, Pyrene, Benz(a)anthracene, Chrysene, Total Benzofluoranthenes, Benzo(a)pyrene, Indeno(1,2,3,-c,d)pyrene, Dibenzo(a,h)anthracene, and Benzo(g,h,i)perylene. The HPAH criterion is not the sum of the criteria values for the individual HPAH compounds as listed.

(f) The TOTAL BENZOFLUORANTHENES criterion represents the sum of the concentrations of the "B," "J," and "K" isomers.

Table I

Marine Sediment Quality Standards--
Chemical Criteria

CHEMICAL PARAMETER	MG/KG DRY WEIGHT (PARTS PER MILLION (PPM) DRY)
ARSENIC	57
CADMIUM	5.1
CHROMIUM	260
COPPER	390
LEAD	450
MERCURY	0.41
SILVER	6.1
ZINC	410

CHEMICAL PARAMETER	MG/KG ORGANIC CARBON (PPM CARBON)
LPAH	370
NAPHTHALENE	99
ACENAPHTHYLENE	66
ACENAPHTHENE	16
FLUORENE	23
PHENANTHRENE	100
ANTHRACENE	220
2-METHYLNAPHTHALENE	38
HPAH	960
FLUORANTHENE	160
PYRENE	1000
BENZ(A)ANTHRACENE	110
CHRYSENE	110
TOTAL BENZOFLUORANTHENES	230
BENZO(A)PYRENE	99
INDENO (1,2,3,-C,D) PYRENE	34
DIBENZO (A,H) ANTHRACENE	12
BENZO(G,H,I)PERYLENE	31
1,2-DICHLOROBENZENE	2.3
1,4-DICHLOROBENZENE	3.1
1,2,4-TRICHLOROBENZENE	0.81
HEXACHLOROBENZENE	0.38
DIMETHYL PHTHALATE	53
DIETHYL PHTHALATE	61
DI-N-BUTYL PHTHALATE	220
BUTYL BENZYL PHTHALATE	4.9
BIS (2-ETHYLHEXYL) PHTHALATE	47
DI-N-OCTYL PHTHALATE	58

CHEMICAL PARAMETER	MG/KG ORGANIC CARBON (PPM CARBON)
DIBENZOFURAN	15
HEXACHLOROBUTADIENE	3.9
N-NITROSODIPHENYLAMINE	11
TOTAL PCB'S	12

CHEMICAL PARAMETER	UG/KG DRY WEIGHT (PARTS PER BILLION (PPB) DRY)
PHENOL	420
2-METHYLPHENOL	63
4-METHYLPHENOL	670
2,4-DIMETHYL PHENOL	29
PENTACHLOROPHENOL	360
BENZYL ALCOHOL	57
BENZOIC ACID	650

(3) Biological effects criteria. For designation of sediments pursuant to WAC 173-204-310(2), sediments are determined to have adverse effects on biological resources when any one of the confirmatory marine sediment biological tests of WAC 173-204-315(1) demonstrate the following results:

(a) Amphipod: The test sediment has a higher (statistically significant, t test, $p \leq 0.05$) mean mortality than the reference sediment and the test sediment mean mortality exceeds twenty-five percent, on an absolute basis.

(b) Larval: The test sediment has a mean survivorship of normal larvae that is less (statistically significant, t test, $p \leq 0.05$) than the mean normal survivorship in the reference sediment and the test sediment mean normal survivorship is less than eighty-five percent of the mean normal survivorship in the reference sediment (i.e., the test sediment has a mean combined abnormality and mortality that is greater than fifteen percent relative to time-final in the reference sediment).

(c) Benthic abundance: The test sediment has less than fifty percent of the reference sediment mean abundance of any one of the following major taxa: Class Crustacea, Phylum Mollusca or Class Polychaeta, and the test sediment abundance is statistically different (t test, $p \leq 0.05$) from the reference sediment abundance.

(d) Juvenile polychaete: The test sediment has a mean individual growth rate of less than seventy percent of the reference sediment mean individual growth rate and the test sediment mean individual growth rate is statistically different (t test, $p \leq 0.05$) from the reference sediment mean individual growth rate.

(e) Microtox: The mean light output of the highest concentration of the test sediment is less than eighty percent of the mean light output of the reference sediment, and the two means are statistically different from each other (t test, $p \leq 0.05$).

(4) Marine sediment human health criteria. Reserved: The department may determine on a case-by-case basis the criteria, methods, and procedures necessary to meet the intent of this chapter.

(5) Marine sediment other toxic, radioactive, biological, or

deleterious substances criteria. Other toxic, radioactive, biological or deleterious substances in, or on, sediments shall be at or below levels which cause no adverse effects in marine biological resources, and below levels which correspond to a significant health risk to humans, as determined by the department. The department shall determine on a case-by-case basis the criteria, methods, and procedures necessary to meet the intent of this chapter pursuant to WAC 173-204-310(3).

(6) Nonanthropogenically affected sediment quality criteria. Whenever the nonanthropogenically affected sediment quality is of a lower quality (i.e., higher chemical concentrations, higher levels of adverse biological response, or posing a greater health threat to humans) than the applicable sediment quality standards assigned for said sediments by this chapter, the existing sediment chemical and biological quality shall be identified on an area-wide basis as determined by the department, and used in place of the sediment quality standards of WAC 173-204-320.

AMENDATORY SECTION (Amending Order 90-41, filed 3/27/91, effective 4/27/91)

WAC 173-204-350 Sediment quality standards inventory. (1) The department shall gather available data on sediments and produce an inventory of sediment sampling stations which pass or fail the applicable sediment quality standards of WAC 173-204-320 through 173-204-340. Sediment sampling stations which are evaluated for compliance with the sediment quality standards of WAC 173-204-320 through 173-204-340 and placed on the inventory shall be sampled and analyzed using the Puget Sound Protocols or other methods approved by the department, and shall use an appropriate quality assurance/quality control program, as determined by the department. The sediment quality standards inventory produced per this section shall be used by the department, and made available upon request to the public and other federal, state, and local agencies for the following uses:

(a) To identify and target necessary source control activities, such as discharger monitoring, to eliminate adverse effects on biological resources and significant health threats to humans from sediment contamination;

(b) To identify contaminated sediment cleanup sites per the procedures in WAC 173-204-500 through 173-204-590;

(c) To establish sediment quality ambient monitoring program status and trends analyses and reports;

(d) To identify the sediment quality of areas proposed for dredging, in-water construction, and other actions requiring federal, state, and/or local permits; and

(e) To complete other uses consistent with the intent of this chapter, as determined by the department.

(2) Sources of data. Sediment biological and chemical data

shall be gathered by the department for review to produce and update the sediment quality inventory on a biennial basis. Data sources include, but are not limited to:

(a) Sediment data collected by the department for the Puget Sound ambient monitoring program, compliance monitoring of permitted discharges, and special environmental investigations.

(b) Sediment data submitted to the U.S. Army Corps of Engineers in support of dredging permit applications.

(c) Sediment data collected to identify problem areas and needed source controls in Puget Sound as defined in WAC 173-204-200((~~(19)~~)) (36), other marine waters, and all low salinity and freshwater areas in Washington state.

(d) Sediment data used or collected in compliance with chapter 70.105D RCW, and the Model Toxics Control Act cleanup regulation, chapter 173-340 WAC.

(e) Sediment data used or collected in compliance with the federal Comprehensive Environmental Response, Compensation and Liability Act.

(f) Sediment data collected as a requirement of a National Pollutant Discharge Elimination System or state discharge permit.

(g) Sediment data derived from other studies including:

(i) Federally sponsored monitoring studies.

(ii) Special monitoring studies conducted by local and municipal governments, or private industry.

(iii) Data derived through Washington state department of natural resources administration of use authorizations.

(3) The inventory shall be updated and made available to the public on a biennial basis.

AMENDATORY SECTION (Amending WSR 96-02-058, filed 12/29/95, effective 1/29/96)

WAC 173-204-410 Sediment quality goal and sediment impact zone applicability. (1) Goal and policies.

(a) It is the established goal of the department to manage source control activities to reduce and ultimately eliminate adverse effects on biological resources and significant health threats to humans from sediment contamination.

(b) The stated policy of the department shall be to only authorize sediment impact zones so as to minimize the number, size, and adverse effects of all zones, with the intent to eliminate the existence of all such zones whenever practicable. The department shall consider the relationship between environmental effects, technical feasibility and cost in determining whether it is practicable to minimize and/or eliminate sediment impact zones.

(c) The department shall implement the standards of WAC 173-204-400 through 173-204-420 so as to prevent the creation of new contaminated sediment cleanup sites identified under WAC ((~~173-204-~~

~~530(4)~~)) 173-204-520.

(2) A sediment impact zone authorization issued by the department under the authority of chapter 90.48 RCW does not constitute authorization to trespass on lands not owned by the applicant. These standards do not address and in no way alter the legal rights, responsibilities, or liabilities of the permittee or landowner of the sediment impact zone for any applicable requirements of proprietary, real estate, tort, and/or other laws not directly expressed as a requirement of this chapter.

(3) Except as identified in subsection (6)(d) of this section, any person may apply for a sediment impact zone under the following conditions:

(a) The person's discharge is provided with all known, available and reasonable methods of prevention, control, and treatment, and meets best management practices as stipulated by the department; and

(b) The person's discharge activity exposes or resuspends sediments which exceed, or otherwise cause or potentially cause sediments to exceed the applicable sediment quality standards of WAC 173-204-320 through 173-204-340, or the antidegradation policy standards of WAC 173-204-120 (1)(a) and (c) within a period of ten years from the later date of either the department's formal approval of the application for a sediment impact zone authorization or the starting date of the discharge.

(4) The department shall only authorize sediment impact zones for permitted wastewater and storm water discharges, and other discharges authorized by the department. The department shall authorize all sediment impact zones via discharge permits or other formal administrative actions.

(5) The department shall not limit the application, establishment, maintenance, or closure of an authorized sediment impact zone via consideration of sediment contamination determined by the department to be the result of unknown, unpermitted or historic discharge sources.

(6) As determined necessary by the department, any person with a permitted discharge shall be required to meet the standards of WAC 173-204-400 through 173-204-420, as follows:

(a) Any person with a new or existing permitted wastewater discharge shall be required to meet the standards of WAC 173-204-400 through 173-204-420;

(b) Any person with a new or existing permitted industrial storm water discharge, regulated as process wastewater in National Pollutant Discharge Elimination System or state discharge permits, shall be required to meet the standards of WAC 173-204-400 through 173-204-420;

(c) Any person with a new or existing permitted storm water or nonpoint source discharge, which fully uses all known, available and reasonable methods of prevention, control, and treatment, and best management practices as stipulated by the department at the time of the person's application for a sediment impact zone, shall be required to meet the standards of WAC 173-204-400 through 173-204-420;

(d) Any person with a storm water discharge, existing prior to

the adoption of this chapter, and determined by the department to not be fully using best management practices stipulated by the department at the time of the person's application for a permit from the department, shall be eligible for a sediment impact zone as follows:

(i) The department shall issue sediment impact zone authorizations with requirements for application of best management practices stipulated by the department on an approved time schedule.

(ii) Sediment impact zones authorized by the department for permitted storm water discharges under the applicability provisions of subsection (6)(d) of this section shall be subject to cleanup action determinations made by the department pursuant to WAC 173-204-500 through 173-204-590 when the sediment impact zone maximum criteria of WAC 173-204-420 are exceeded within the authorized sediment impact zone.

(iii) The department shall identify and include best management practices required to meet the sediment impact zone design standards of WAC 173-204-415(4) as soon as practicable within sediment impact zone authorizations established for storm water discharges per WAC 173-204-410 (6)(d).

(7) Dredged material and fill discharge activities subject to authorization under Section 401 of the federal Clean Water Act via chapter 90.48 RCW and chapter 173-225 WAC, establishment of implementation procedures of application for certification, are not subject to the standards of WAC 173-204-415 but are subject to the standards of WAC 173-204-400 through 173-204-410 and 173-204-420 as follows:

(a) Requirements for dredging activities and disposal sites shall be established by the department using best available dredged material management guidelines and applicable federal and state rules. These guidelines shall include the Puget Sound dredged disposal analysis (PSDDA) dredged material testing and disposal requirements cited in:

(i) *Management Plan Report - Unconfined Open-Water Disposal Of Dredged Material, Phase I, (Central Puget Sound), June 1988, or as amended;*

(ii) *Management Plan Report - Unconfined Open-Water Disposal Of Dredged Material, Phase II, (North And South Puget Sound), September 1989, or as amended;* and

(iii) *Users Manual For Dredged Material Management In Puget Sound, November 1990, or as amended.*

(b) In coordination with other applicable federal and state and local dredged material management programs, the department may issue administrative orders to establish approved disposal sites, to specify disposal site use conditions, and to specify disposal site monitoring requirements.

(c) The department may authorize sediment impact zones for dredged material disposal via federal Clean Water Act Section 401 certification actions.

(d) As determined necessary by the department, the department may authorize sediment impact zones for dredged material disposal

via administrative orders issued under authority of chapter 90.48 RCW. The department shall authorize sediment impact zones for all Puget Sound dredged disposal analysis disposal sites via administrative orders issued under authority of chapter 90.48 RCW.

(e) Administrative orders and certifications establishing sediment impact zones for dredged material disposal sites shall describe establishment, maintenance, and closure requirements for the authorized site, consistent with the requirements described in (a) of this subsection.

(8) The source control standards of WAC 173-204-400 through 173-204-420 are applicable in cases where the sediment quality standards of WAC 173-204-320 through 173-204-340 are reserved.

AMENDATORY SECTION (Amending WSR 96-02-058, filed 12/29/95, effective 1/29/96)

WAC 173-204-412 Marine finfish rearing facilities. (1) Purpose. This section sets forth the applicability of this chapter to marine finfish rearing facilities only. This section also identifies marine finfish rearing facility siting, operation, closure and monitoring requirements to meet the intent of this chapter, as applicable.

(2) Applicability. Marine finfish rearing facilities and their associated discharges are not subject to the authority and purpose standards of WAC 173-204-100 (3) and (7), and the marine sediment quality standards of WAC 173-204-320 and the sediment impact zone maximum criteria of WAC 173-204-420, within and including the distance of one hundred feet from the outer edge of the marine finfish rearing facility structure. Marine finfish rearing facilities are not subject to the sediment impact zone standards of WAC 173-204-415.

(3) Sediment monitoring. Sediment quality compliance and monitoring requirements for marine finfish rearing facilities shall be addressed through National Pollutant Discharge Elimination System or other permits issued by the department for facility operation. Marine finfish rearing facilities shall meet the following sediment quality monitoring requirements:

(a) Any person with a new facility shall identify a baseline sediment quality prior to facility operation for benthic infaunal abundance, total organic carbon and grain size in the location of the proposed operation and downcurrent areas that may be potentially impacted by the facility discharge;

(b) Any person with an existing operating facility shall monitor sediment quality for total organic carbon levels and identify the location of any sediments in the area of the facility statistically different (t test, $p \leq 0.05$) from the total organic carbon levels identified as facility baseline levels or statistically different from the applicable total organic carbon levels as identified in Table 1:

TABLE 1 - Puget Sound Reference Total Organic Carbon Values

Silt-Clay Particles (percent Dry Weight)	Total Organic Carbon (percent Dry Weight)
0-20	0.5
20-50	1.7
50-80	3.2
80-100	2.6

(c) The locations and frequency of monitoring for total organic carbon, benthic infaunal abundance and other parameters shall be determined by the department and identified in the applicable National Pollutant Discharge Elimination System permit;

(d) Antibacterials. Reserved: The department shall determine on a case-by-case basis the methods, procedure, locations, and frequency for monitoring antibacterials associated with the discharge from a marine finfish rearing facility;

(e) Closure. All permitted marine finfish rearing facilities shall monitor sediments impacted during facility operation to document recovery of sediment quality to background levels. The department shall determine on a case-by-case basis the methods, procedure, locations, and frequency for monitoring sediments after facility closure.

(4) Sediment impact zones. Marine finfish rearing facilities and their associated discharges that are permitted under a National Pollutant Discharge Elimination System permit are hereby provided a sediment impact zone by rule for any sediment quality impacts and biological effects within and including the distance of one hundred feet from the outer edge of the marine finfish rearing facility structure.

(a) The department may authorize an individual marine finfish rearing facility sediment impact zone for any sediments beyond a distance of one hundred feet from the facility perimeter via National Pollutant Discharge Elimination System permits or administrative actions. The authorized sediment impact zone shall meet the benthic infaunal abundance requirements of the sediment impact zone maximum criteria, WAC 173-204-420 (3)(c)(iii). Marine finfish rearing facilities that exceed the sediment quality conditions of subsection (3)(b) of this section beyond a distance of one hundred feet from the facility perimeter shall:

(i) Begin an enhanced sediment quality monitoring program to include benthic infaunal abundance consistent with the requirements of the National Pollutant Discharge Elimination System permit. The sediment quality monitoring program shall include a benthic infaunal abundance reference sediment sample as required in subsection (3)(a) of this section or a benthic infaunal abundance reference sediment sample in compliance with WAC 173-204-200((~~(21)~~)) (39); and

(ii) Be consistent with the sediment source control general considerations of WAC 173-204-400 and the sediment quality goal and sediment impact zone applicability requirements of WAC 173-204-410, apply for a sediment impact zone as determined necessary by the

department.

(b) Administrative orders or permits establishing sediment impact zones for marine finfish rearing facilities shall describe establishment, maintenance, and closure requirements as determined necessary by the department.

AMENDATORY SECTION (Amending WSR 96-02-058, filed 12/29/95, effective 1/29/96)

WAC 173-204-415 Sediment impact zones. The purpose of this section is to set forth the standards for establishment, maintenance, and closure of sediment impact zones to meet the intent of sediment quality dilution zones authorized pursuant to RCW 90.48.520, except for sediment impact zones authorized under WAC 173-204-410(7). The department shall authorize all sediment impact zones via discharge permits or other formal administrative actions.

(1) General requirements. Authorization, modification and renewal of a sediment impact zone by the department shall require compliance with the following general requirements:

(a) Permits authorizing wastewater discharges to surface waters of the state of Washington under authority of chapter 90.48 RCW shall be conditioned so that the discharge receives:

(i) All known, available and reasonable methods of prevention, control, and treatment prior to discharge, as required by chapters 90.48, 90.52, and 90.54 RCW; and

(ii) Best management practices as stipulated by the department.

(b) The maximum area, and maximum chemical contaminant concentration and/or allowable maximum biological effect level within sediments assigned to a sediment impact zone shall be as authorized by the department, in accordance with the standards of this section.

(c) The department shall determine that the person's activity generating effluent discharges which require authorization of a sediment impact zone is in the public interest.

(d) The department shall determine that any person's activity generating effluent discharges which require authorization of a sediment impact zone has adequately addressed alternative waste reduction, recycling, and disposal options through application of all known, available and reasonable methods of prevention, control, and treatment to minimize as best practicable the volume and concentration of waste contaminants in the discharge.

(e) The area boundaries of the sediment impact zone established by the department shall include the minimum practicable surface area, not to exceed the surface area allowed under subsection (4) of this section.

(f) Adverse effects to biological resources within an authorized sediment impact zone shall be maintained at the minimum

chemical contamination and biological effects levels practicable at all times. The department shall consider the relationship between environmental effects, technical feasibility and cost in determining the minimum practicable chemical contamination and biological effects levels. Adverse effects to biological resources within an authorized sediment impact zone shall not exceed a minor adverse effects level as a result of the discharge, as determined by the procedures of subsection (4) of this section.

(g) The operational terms and conditions for the sediment impact zone shall be maintained at all times.

(h) Final closure of the sediment impact zone shall be conducted in strict accordance with the department's sediment impact zone authorization.

(i) Documents authorizing a sediment impact zone shall require that the permitted discharge not result in a violation of the applicable sediment quality standards of WAC 173-204-320 through 173-204-340, outside the area limits of the established zone.

(j) All applications to the department for sediment impact zone authorizations shall be subject to public notice, comment and hearing procedures defined but not limited to the applicable discharge permit or other formal administrative action requirements of chapter 43.21C RCW, the State Environmental Policy Act, chapter 197-11 WAC, SEPA rules, chapter 90.48 RCW, chapter 163-216 WAC, the State waste discharge permit program, and chapter 173-220 WAC, National Pollutant Discharge Elimination System Permit Program prior to issuance of the authorization. In determining the need for, location, and/or design of any sediment impact zone authorization, the department shall give consideration to all comments received during public review of the proposed sediment impact zone application.

(2) Application requirements.

(a) Whenever, in the opinion of the department, as a result of an ongoing or proposed effluent discharge, a person violates, shall violate, or creates a substantial potential to violate the sediment quality standards of WAC 173-204-320 through 173-204-340 as applicable within a period of ten years from the later date of either the department's evaluation of the ongoing discharge or the starting date of the proposed discharge, the department may require application for a sediment impact zone authorization under authority of chapter 90.48 RCW.

(b) Any person with a proposed or permitted effluent discharge shall apply to the department for authorization of a sediment impact zone when:

(i) The department requires the sediment impact zone application by written notification; or

(ii) The person independently identifies that the ongoing or proposed effluent discharge violates, shall violate, or creates a substantial potential to violate the applicable sediment quality standards of WAC 173-204-320 through 173-204-340 within a period of ten years from the later date of the person's evaluation of the ongoing discharge or the starting date of the proposed discharge, using the procedures of this section.

(c) As necessary, the department may require any person to

submit a sediment impact zone application in multiple steps concurrent with its ongoing review and determination concerning the adequacy of the application. The application shall provide the sediment impact zone design information required in subsection (4) of this section and other such information the department determines necessary. The application shall also provide the legal location and landowner(s) of property proposed for use as, or potentially affected by, a sediment impact zone, and shall be accompanied by such other relevant information as the department may require. The department shall issue a written approval of the complete sediment impact zone application prior to or concurrent with authorizing a sediment impact zone.

(d) Submittal of an application to the department for authorization of a sediment impact zone under the terms and conditions of this section shall establish the applicant's interim compliance with requirements of chapter 90.48 RCW and this chapter, as determined by the department. The department may authorize an interim compliance period within a valid discharge permit or administrative order to ensure ultimate compliance with chapter 90.48 RCW and this chapter. The interim compliance period shall not continue beyond the date of issuance of a sediment impact zone authorization within a valid discharge permit issued by the department.

(e) Prior to authorization, the department shall make a reasonable effort to identify and notify all landowners, adjacent landowners, and lessees affected by the proposed sediment impact zone. The department shall issue a sediment impact zone notification letter to any person it believes to be a potentially affected landowner and other parties determined appropriate by the department. The notification letter shall be sent by certified mail, return receipt requested, or by personal service. The notification letter shall provide:

(i) The name of the person the department believes to be the affected landowner;

(ii) The names and addresses of other affected landowners to whom the department has sent a proposed sediment impact zone notification letter;

(iii) The name and address of the sediment impact zone applicant;

(iv) A general description of the location, size, and contamination level proposed for the sediment impact zone;

(v) The intention of the department to release all specific sediment impact zone application information to the public upon written request to the department;

(vi) The determination of the department concerning whether the proposed sediment impact zone application meets the standards of this section;

(vii) The intention of the department whether to authorize the proposed sediment impact zone; and

(viii) Notification that the affected landowners, adjacent landowners, and lessees may comment on the proposed sediment impact zone. Any comments on the proposed sediment impact zone authorization shall be submitted in writing to the department

within thirty days from the date of receipt of the notification letter, unless the department provides an extension.

(f) Prior to authorization, the department shall issue a sediment impact zone notification letter to affected port districts, the Washington state department of natural resources marine lands division, the U.S. Army Corps of Engineers, and other parties determined appropriate by the department. The notification letter shall be sent by certified mail, return receipt requested, or by personal service. The notification letter shall provide the information required under (e) of this subsection.

(3) Locational considerations. The department shall require any person applying for a sediment impact zone to submit information concerning potential location considerations of the zone. The location of an authorized sediment impact zone shall avoid whenever possible and minimize adverse impacts to areas of special importance. Prior to authorization of a sediment impact zone, the department shall consider all pertinent information from the applicant, all affected parties, local, state and federal agencies, federally recognized Indian tribes, and the public concerning locational considerations, including but not limited to:

(a) Spawning areas;

(b) Nursery areas;

(c) Waterfowl feeding areas;

(d) Shellfish harvest areas;

(e) Areas used by species of economic importance;

(f) Tribal areas of significance;

(g) Areas determined to be ecologically unique;

(h) Water supply intake areas;

(i) Areas used for primary contact public recreation;

(j) High quality waters that constitute an outstanding national resource; and

(k) Areas where sediment quality is substantially better than levels necessary for protection of biological resources and human health.

(4) Design requirements. The location, areal limitations, and degree of effects allowed within an authorized sediment impact zone shall be determined by application of the department's sediment impact zone computer models "CORMIX," "PLUMES," and/or "WASP," or an alternate sediment impact zone model(s) approved by the department under WAC 173-204-130(4), as limited by the standards of this section and the department's best professional judgment. The models shall be used by the department or by the discharger as required by the department, to estimate the impact of any person's wastewater or storm water discharge on the receiving water and sediment quality for a period of ten years from the later date of either the department's formal approval of the application for a sediment impact zone authorization or the starting date of the discharge.

(a) Data requirements. The discharger shall submit the following information to determine requirements for establishment and authorization of a sediment impact zone, as required by the department:

(i) Data reports and analyses results for all samples of

wastewater or storm water, receiving water, and sediments collected by the discharger or other parties relating to evaluation of the potential effects of the permitted discharge, as required by WAC 173-204-400.

(ii) Data reports and analyses results determined necessary to:

(A) Apply discharge modeling to the permitted discharge; and

(B) To identify and evaluate potential alternative chemical and biological effects of the discharge on the receiving water and sediments; and

(C) To identify and evaluate potential alternatives to define the areal size and location of a sediment impact zone needed by the discharge.

(iii) Data reports and analyses results from the discharger's application of the "CORMIX," "PLUMES," and/or "WASP" or an alternate sediment impact zone model(s) approved by the department under WAC 173-204-130(4), to the permitted discharge to identify and evaluate:

(A) Potential alternative chemical and biological effects of the discharge on the receiving water and sediments; and

(B) Potential alternatives for the areal distribution and location of a potential sediment impact zone required by the discharge.

(iv) Preferred alternative for closure of the potential sediment impact zone by active removal and/or natural recovery, and identified costs of the preferred closure method.

(b) Overlapping sediment impact zones. Overlapping sediment impact zones, as predicted by the "CORMIX," "PLUMES," and/or "WASP" models or an alternate sediment impact zone model(s) approved by the department under WAC 173-204-130(4), and the department's best professional judgment, shall be authorized only as follows:

(i) The applicable sediment impact zone maximum criteria of WAC 173-204-420 shall not be exceeded as a result of the multiple discharge sediment impact zones overlap; and

(ii) If the department determines that the applicable chemical contaminant concentration and biological effects restrictions of WAC 173-204-420 would be exceeded as a result of the overlap of multiple discharge sediment impact zones, the department may authorize the sediment impact zones after:

(A) Application of a waste load allocation process to the individual permitted discharges to identify individual permit effluent limitations necessary to meet:

(I) The applicable chemical contaminant concentration and biological effects restrictions for sediment impact zones required by this section; and/or

(II) Storm water best management practices required by the department; and

(B) Establishment of individual permit compliance schedules for the multiple permitted discharges to ensure compliance with:

(I) The permit effluent limitations established by the department using the waste load allocation process and best professional judgment; and

(II) The standards of WAC 173-204-400 through 173-204-420.

(5) Maintenance requirements.

(a) The department shall review sediment impact zone monitoring conducted by the discharger to evaluate compliance with the department's sediment impact zone authorization and the standards of WAC 173-204-400 through 173-204-420. The department may require additional sediment impact zone monitoring when the department determines that any sediment sampling station within an authorized sediment impact zone exceeds the sediment impact zone maximum criteria of WAC 173-204-420 or violates the sediment impact zone authorization as a result of the discharge.

(b) Whenever the department can clearly demonstrate that, as a result of an effluent discharge, a discharger violates, shall violate, or creates a substantial potential to violate the department's sediment impact zone authorization, or the sediment impact zone maximum criteria of WAC 173-204-420, the department shall:

(i) Provide written notification and supporting documentation of the department's clear demonstration determination to the affected discharger;

(ii) Establish a reasonable time frame for the affected discharger to either submit a written statement and supporting documentation rebutting the department's clear demonstration determination, or accept the department's determination. The discharger may use the clear demonstration methods identified in (c) of this subsection for rebuttal of the department's clear demonstration; and

(iii) Provide written notification of the department's determination concerning approval or denial of the submitted clear demonstration rebuttal to the discharger.

(c) For the purpose of this section, a clear demonstration shall consist of:

(i) Use of the sediment impact zone model(s) "CORMIX," "PLUMES," and/or "WASP" or other model(s) to demonstrate a discharge(s) is the source of the violation or potential violation; and

(ii) Use of one or more of the following methods to demonstrate a violation of the sediment impact zone authorization or the sediment impact zone maximum criteria of WAC 173-204-420:

(A) Direct sediment sampling. A violation of the sediment impact zone authorization and/or the sediment impact zone maximum criteria of WAC 173-204-420 is demonstrated when:

(I) The average chemical concentration for three stations within the sediment impact zone exceeds the sediment impact zone maximum criteria of WAC 173-204-420 due to the discharge source. This concentration average shall not include stations for which complete biological testing information shows that the biological effects requirements of WAC 173-204-420, or the authorized sediment impact zone if applicable, are met; or

(II) The biological effects at each of any three stations within the sediment impact zone exceed the sediment impact zone maximum biological effects criteria of WAC 173-204-420 or the authorized sediment impact zone as applicable, due to the discharge source; or

(B) Monitoring data which demonstrates a chemical contaminant

concentration gradient toward the discharge source exists in sediments which violates the sediment impact zone authorization or the standards of WAC 173-204-420; or

(C) A trend analysis of the effluent chemical discharge quality and ((~~inplace~~)) in place sediment monitoring data which statistically demonstrates an ongoing violation or substantial potential to violate the sediment impact zone authorization or the standards of WAC 173-204-420; or

(D) Field depositional (e.g., sediment traps) and/or effluent particulate (e.g., centrifuge analysis) data which demonstrate an ongoing violation or substantial potential to violate the sediment impact zone authorization or the standards of WAC 173-204-420; or

(E) Mathematical or computer modeling which demonstrates an ongoing violation or substantial potential to violate the sediment impact zone authorization or the standards of WAC 173-204-420.

(d) The department's response to a clear demonstration of a violation or potential violation shall be to require maintenance activities in the following order:

(i) Require reanalysis of whether the discharger's effluent treatment complies with all known, available and reasonable methods of prevention, control, and treatment and best management practices based on the data used to establish the clear demonstration;

(ii) Alter the authorized sediment impact zone size and/or degree of effects consistent with the standards of this section and the results of direct sediment sampling;

(iii) Reduce impacts of the existing or potential violation by requiring additional discharge controls or additional sediment impact zone maintenance activities which can include, but are not limited to:

(A) Dredging and removal of sediments, solely for sediment impact zone maintenance needs or coordinated with maintenance dredging of commercially important areas, e.g., navigational lanes or ship berthing areas;

(B) Dredging, treatment, and replacement of sediments within the sediment impact zone; and/or

(C) Capping of sediments within the sediment impact zone;

(iv) Limit the quantity and/or quality of the existing permitted discharge; and/or

(v) Withdraw the department's sediment impact zone authorization and require final closure of the zone.

(e) All sediment impact zone maintenance actions conducted under this chapter shall provide for landowner review of the maintenance action plans prior to implementation of the action. In cases where the discharger is not able to secure access to lands subject to the sediment impact zone maintenance actions of this subsection, the department may facilitate negotiations or other proceedings to secure access to the lands. Requests for department facilitation of land access shall be submitted to the department in writing by the responsible discharger.

(6) Closure planning and requirements.

(a) The discharger shall select and identify a preferred method for closure of a sediment impact zone in the application required by WAC 173-204-415(2). Closure methods can include either

active cleanup and/or natural recovery and monitoring. The department shall incorporate the discharger's identified closure method in the sediment impact zone authorization.

(b) The department may require closure of authorized sediment impact zones when the department determines that:

(i) The discharger has violated the sediment impact zone maintenance standards of subsection (5) of this section; or

(ii) The department determines that:

(A) The wastewater or storm water discharge quality will not violate the applicable sediment quality standards of WAC 173-204-320 through 173-204-340; or

(B) A sediment impact zone is no longer needed or eligible under the standards of WAC 173-204-410 through 173-204-415.

(7) Modification of sediment impact zones. The department may modify sediment impact zone authorization requirements where the nature of a person's activity which generates, transports, disposes, prevents, controls, or treats effluent discharges has substantially changed and been demonstrated to the department's satisfaction. The modification may occur after consideration of the following:

(a) Reduction of effects. Assessment of the discharge activities and treatment methods shall be conducted by the discharger to demonstrate to the satisfaction of the department that:

(i) Elimination of the sediment impact zone is not practicable; and

(ii) Further reduction in any existing or proposed sediment impact zone area size and/or level of contamination or effects is not practicable in consideration of discharge requirements for all known, available and reasonable methods of prevention, control, and treatment, best management practices, and applicable waste reduction and recycling provisions.

(b) Alterations. There are substantial alterations or additions to the person's activity generating effluent discharges which require authorization of a sediment impact zone which occur after permit issuance and justify application of permit conditions different from, or absent in, the existing permit.

(c) New information. Sediment impact zones may be modified when new information is received by the department that was not available at the time of permit issuance that would have justified the application of different sediment impact zone authorization conditions.

(d) New regulations. The standards or regulations on which the permit was based have changed by amended standards, criteria, or by judicial decision after the permit was issued.

(e) Changes in technology. Advances in waste control technology that qualify as "all known, available and reasonable methods of prevention, control, and treatment" and "best management practices" shall be adopted as permit requirements, as appropriate, in all permits reissued by the department.

(8) Renewal of previously authorized sediment impact zones. Renewal of sediment impact zones previously authorized under the standards of WAC 173-204-410 and this section shall be allowed

under the following conditions:

(a) The department determines the discharge activities and treatment methods meet all known, available and reasonable methods of prevention, control, and treatment and best management practices as stipulated by the department; and

(b) The discharger demonstrates to the department's satisfaction that the discharge activities comply with the standards of WAC 173-204-400 through 173-204-420 and with the existing sediment impact zone authorization; and

(c) Reduction of effects. The discharger conducts an assessment of the permitted discharge activities and treatment methods and demonstrates to the department's satisfaction that:

(i) Elimination of the sediment impact zone is not practicable; and

(ii) A further reduction in any existing or proposed sediment impact zone area size and/or level of contamination is not practicable in consideration of discharge requirements for all known, available and reasonable methods of prevention, control, and treatment, best management practices, and applicable waste reduction and recycling provisions.

AMENDATORY SECTION (Amending Order 90-41, filed 3/27/91, effective 4/27/91)

WAC 173-204-500 Sediment cleanup decision process and policies. ((~~(1) The standards of WAC 173-204-500 through 173-204-590 are procedures which specify a cleanup decision process for managing contaminated sediments. These procedures include:~~

~~(a) Screening sediment station clusters of potential concern;~~

~~(b) Conducting hazard assessments to identify cleanup sites;~~

~~(c) Ranking sites identified in (b) of this subsection;~~

~~(d) Determining the appropriate site cleanup authority;~~

~~(e) Conducting a site cleanup study;~~

~~(f) Determining the site-specific cleanup standard;~~

~~(g) Selecting a site cleanup action; and~~

~~(h) Where necessary, authorizing a cleanup site sediment recovery zone.~~

~~(2) Under this chapter, the department may require or take those actions necessary to implement the standards of WAC 173-204-500 through 173-204-580 for all contaminated sediment stations on the inventory identified in WAC 173-204-350.~~

~~(3) The cleanup process and procedures under this chapter and under other laws may be combined. The department may initiate a cleanup action under this chapter and may upon further analysis determine that another law is more appropriate, or vice versa.~~

~~(4) It is the policy of the department to manage sediment cleanup actions towards the goal of reducing and ultimately eliminating adverse effects on biological resources and significant~~

~~health threats to humans from sediment contamination. To achieve this goal, the department will pursue sediment cleanup decisions and cleanup standards that are as close as practicable to the sediment quality standards of WAC 173-204-320 through 173-204-340, including the consideration of net environmental effects, cost and technical feasibility. The department shall only authorize sediment recovery zones so as to minimize the number, size and adverse effects of all zones, with the intent to eliminate the existence of all such zones whenever practicable.~~

~~(5) The department shall endeavor to make sediment cleanup decisions in an expeditious manner, as soon as all needed information is available, consistent with the availability of department resources and the priority of the cleanup site.~~)) (1) **Applicability.**

(a) This part is promulgated under the authority of chapter 70.105D RCW, the Model Toxics Control Act. Sediment cleanup standards and the other cleanup criteria of WAC 173-204-500 through 173-204-590 are not sediment quality standards and shall only be used for purposes specified in chapter 70.105D RCW. Sediment quality standards are established under Part III of this chapter under the authority of chapters 70.105D and 90.48 RCW.

(b) This section describes the decision process and associated policies and principles governing the investigation and cleanup of contaminated sediment at sites under chapter 70.105D RCW. If there are any inconsistencies between this section and a specifically referenced section, the specifically referenced section shall govern.

(2) **Cleanup decision process.** In general, the process for cleanup of contaminated sediments includes the following steps:

(a) Identifying sediment station clusters of potential concern (WAC 173-204-510);

(b) Identifying cleanup sites for further evaluation (WAC 173-204-520);

(c) Evaluating sites identified in (b) of this subsection (WAC 173-204-530);

(d) Determining the appropriate site cleanup authority (WAC 173-204-540);

(e) Conducting a remedial investigation and feasibility study (WAC 173-204-550);

(f) Establishing the applicable sediment cleanup standards (WAC 173-204-560);

(g) Selecting a cleanup action (WAC 173-204-570);

(h) Documenting the cleanup action decision and soliciting public review of that decision (WAC 173-204-580); and

(i) Where necessary, authorizing a sediment recovery zone (WAC 173-204-590).

(3) **Coordination with other laws.** The cleanup process and procedures under this chapter and under other laws may be combined.

(4) **Cleanup process expectations.** The department has the following expectations regarding the cleanup process for contaminated sediment sites. The department recognizes there may be sites where cleanup actions conforming to these expectations are

not appropriate:

(a) Scale of cleanups. Sediment contamination can be widespread with multiple contaminants from multiple sources that have been intermingled and dispersed by natural processes and human activity. It is the department's intent to address this widespread contamination using multiple approaches that lead to cleanup as effectively and efficiently as possible. This may include:

(i) The establishment of "sediment cleanup unit(s)" within a site, and the expedited cleanup of those units consistent with the cleanup strategy and broader scale toxics reduction and source control strategies;

(ii) Coordinating cleanup of multiple sites and sediment cleanup units on a bay-wide, area-wide, or watershed-wide scale; and

(iii) Use of source control measures to minimize future contamination.

(b) Recontamination. Recontamination of sediment at remediated sites or sediment cleanup units may occur from ongoing discharges. It is the department's expectation that further cleanup of recontamination will not be required by the person(s) conducting the initial cleanup when the person(s) can demonstrate, upon department approval, that the recontamination is caused by a source or a permitted release not under the authority or responsibility of the person(s) conducting the initial cleanup.

(c) Restoration time frame. The department expects that the sediment component of sites and sediment cleanup units with limited contamination will be restored within a single construction season using active cleanup actions such as dredging or capping. However, the department recognizes longer restoration time frames may be necessary at sites with more extensive or widespread contamination, including sites with ubiquitous chemicals from numerous point and nonpoint source discharges. At such sites, the department expects cleanup actions will include a combination of active and passive cleanup actions and will achieve restoration as soon as practicable following completion of the active cleanup actions.

(d) Sediment recovery zones. At sites or sediment cleanup units where the cleanup action cannot practicably achieve sediment cleanup standards within ten years after start of the cleanup action, the department expects that a sediment recovery zone will be established and managed in accordance with WAC 173-204-590.

(e) Compliance monitoring. The department expects that post-cleanup monitoring will be conducted at sites and sediment cleanup units to verify compliance with approved sediment cleanup standards. Monitoring will typically include analysis of sediment chemistry at a minimum, but may also include bioassays, tissue chemistry, pore water and surface water testing, and more intense discharge monitoring than would normally occur under a discharge permit where circumstances warrant.

(f) Scope of information. The scope of information needed to adequately characterize different site or sediment cleanup units will vary depending on site conditions and complexity. It is the department's expectation that sufficient information will be gathered in as few sampling events as feasible to enable

appropriate decisions and cleanups to proceed expeditiously.

(g) Timely decisions. The department shall endeavor to make sediment cleanup decisions in an expeditious manner, as soon as all information required by the department is available, consistent with the availability of department resources and the priority of the cleanup site.

(5) **Relationship between sediment cleanup standards and cleanup actions.** It is the policy of the department to establish sediment cleanup standards and select cleanup actions that support the goal of reducing and ultimately eliminating adverse effects on biological resources and risks to human health from sediment contamination.

(a) Sediment cleanup standards. WAC 173-204-560 establishes requirements for sediment cleanup standards. Sediment cleanup standards consist of sediment cleanup levels for individual contaminants and the locations within the site or sediment cleanup unit where the sediment cleanup levels must be met (points of compliance or biologically active zone). Sediment cleanup standards may also include other regulatory requirements that apply to a cleanup action for contaminated sediment because of the type of action and/or location of the site (applicable local, state, and federal laws).

(i) Sediment cleanup levels. A sediment cleanup level is the concentration or level of biological effects for a contaminant in sediment that is determined by the department to be protective of human health and the environment. The sediment cleanup level is established in accordance with the requirements in WAC 173-204-560(2). The sediment cleanup level shall be the sediment cleanup objective and shall be adjusted upward as required based on what is technically possible and whether meeting the sediment cleanup objective will have an adverse impact on the aquatic environment, including natural resources and habitat. A sediment cleanup level may not be adjusted upward above the cleanup screening level. The sediment cleanup level, in combination with the point of compliance or biologically active zone, typically defines the area or volume of sediment at a site or sediment cleanup unit that must be addressed by the cleanup action.

(A) Sediment cleanup objectives. The sediment cleanup objective defines the goal for protection of human health and environment. This goal is expected to be achieved through a combination of cleanup actions and source control. The sediment cleanup objective is established in accordance with the requirements in WAC 173-204-560(3). If a risk-based concentration is below the natural background level or level that can be reliably measured, then the sediment cleanup objective is established at a concentration equal to the practical quantitation limit or natural background, whichever is higher.

(B) Cleanup screening level. The cleanup screening level is established in accordance with the requirements in WAC 173-204-560(4). If a risk-based concentration is below the regional background level or level that can be reliably measured, then the cleanup screening level is established at a concentration equal to

the practical quantitation limit or regional background, whichever is higher.

(ii) Points of compliance. A point of compliance is the location within the site where sediment cleanup levels must be attained. Points of compliance are established in accordance with the requirements in WAC 173-204-560(6). Points of compliance may be established within the biologically active zone to protect aquatic life or may be established within a different location to protect human health.

(b) Cleanup actions. WAC 173-204-570 establishes requirements for cleanup actions for contaminated sediment. The cleanup actions must achieve sediment cleanup standards within the site or sediment cleanup unit, as applicable. Cleanup actions usually consist of a combination of active and passive actions. At sites where there are ongoing sources, the cleanup actions will usually also include source control measures.

(i) Active cleanup actions. Sediment contamination may be addressed by active cleanup actions such as dredging, capping, treatment, and enhanced natural recovery. Active cleanup actions are preferred over passive cleanup actions.

(ii) Passive cleanup actions. Passive cleanup actions, such as monitored natural recovery and institutional controls, may be used in combination with active cleanup actions and source control measures to address sediment contamination.

(iii) Source control. Source control measures consist of controlling ongoing sources to limit discharges of contaminants that accumulate in sediment. Source control measures may be necessary part of a cleanup action to prevent recontamination of the site or sediment cleanup unit above the sediment cleanup level.

(c) Presumption of protectiveness. Sediment cleanup actions that achieve the sediment cleanup levels at the applicable points of compliance are presumed to be protective of human health and the environment.

(6) **Applicability of new sediment cleanup standards.**

(a) The department shall determine the sediment cleanup standards that apply to a site or sediment cleanup unit based on the rules in effect under this chapter at the time the department issues a final cleanup action plan or similar decision document as described in WAC 173-204-580.

(b) A site cleaned up with sediment cleanup standards determined in (a) of this subsection shall not be subject to further cleanup action due solely to subsequent amendments of the requirements in this chapter governing the establishment of sediment cleanup standards, unless the department determines on a case-by-case basis that the previous cleanup action is no longer sufficiently protective of human health and the environment.

AMENDATORY SECTION (Amending WSR 96-02-058, filed 12/29/95, effective 1/29/96)

WAC 173-204-510 ((~~Screening~~)) Identifying sediment station clusters of potential concern. (1) ((~~Using the sediment quality standards inventory of WAC 173-204-350,~~)) **Data analysis.** The department shall analyze the sediment sampling data to identify station clusters of potential concern and station clusters of low concern ((~~per the standards of this section~~)). Station clusters of potential concern shall be further evaluated using the hazard assessment standards of WAC ((~~173-204-530~~)) 173-204-520. Station clusters of low concern shall remain on the inventory and no further cleanup action determinations shall be ((~~taken~~)) made by the department until the stations are reexamined per subsection (5) of this section.

(2) **Station clusters.** A station cluster is defined as any number of stations ((~~from the inventory of WAC 173-204-350~~)) that are determined by the department to be spatially and chemically similar. For the purpose of identifying a station cluster of potential concern ((~~per the procedures of this subsection~~)), three stations with the highest contaminant concentration for any particular contaminant or the highest degree of biological effects as identified in WAC ((~~173-204-520~~)) 173-204-562 and 173-204-563 are selected from a station cluster. This procedure may be repeated for multiple chemicals ((~~identified in WAC 173-204-520~~)), recognizing that the three stations with the highest concentration for each particular contaminant may be different and the respective areas for all chemicals may overlap. The department shall ((~~review the inventory of WAC 173-204-350 to~~)) identify station clusters of potential concern ((~~via the following~~)) using the process((~~:~~)) specified in this subsection.

(a) Identify, if available, the three stations within a station cluster with the highest concentration of each chemical contaminant identified in WAC ((~~173-204-520, Cleanup screening levels criteria; and~~)) 173-204-562 and 173-204-563.

((~~(b)~~)) (i) For each contaminant identified in (a) of this subsection, determine the average concentration for the contaminant at the three stations identified ((~~in (a) of this subsection; and~~)).

((~~(c) Identify if available, three stations within the station cluster with the highest level of biological effects for the biological tests identified in WAC 173-204-315(1); and~~

~~(d)~~)) (ii) If the average chemical contaminant concentration for any three stations identified in (a) of this subsection, exceeds the applicable cleanup screening level in WAC ((~~173-204-520~~)) 173-204-562 and 173-204-563, then the station cluster ((~~is~~)) shall be defined as a station cluster of potential concern((~~; and~~)).

((~~(e)~~)) (b) Identify, if available, three stations within the station cluster with the highest level of biological effects for the biological tests identified in WAC 173-204-562 and 173-204-563. If the level of biological effects at each of the three stations

from ((~~(c)~~)) (b) of this subsection exceeds the cleanup screening level in WAC ((~~173-204-520~~)) 173-204-562 and 173-204-563, then the station cluster is defined as a station cluster of potential concern((~~; and~~)).

((~~(f) If neither of the conditions of (d) or (e) of this subsection apply, then the station cluster is defined as a station cluster of low concern; and~~

~~(g)~~)) (c) If the department determines that ((~~any~~)) each of three stations within a station cluster exceed the ((~~sediment cleanup screening~~)) following criteria, then the station cluster shall be defined as a station cluster of potential concern:

(i) The applicable cleanup screening levels human health or background criteria ((~~or~~)) in WAC 173-204-560(4);

(ii) The other toxic, radioactive, biological, or deleterious substances criteria in WAC 173-204-562 and 173-204-563, as applicable; or

(iii) The nonanthropogenically affected criteria of WAC ((~~173-204-520, then the station cluster is defined as a station cluster of potential concern~~)) 173-204-562 and 173-204-563, as applicable.

(d) If neither of the conditions of (a)(ii) or (b)(i) or (c) of this subsection apply, then the station cluster is defined as a station cluster of low concern.

(3) **Notification.** When a station cluster of potential concern has been identified, the department shall issue notification to the landowners, lessees, onsite dischargers, adjacent dischargers, and other persons determined appropriate by the department prior to the department's conducting a hazard assessment as defined in WAC 173-204-530.

(4) **No further cleanup action.** No further cleanup action determinations shall be taken with station clusters of low concern until ((~~the inventory of WAC 173-204-350 is updated~~)) new information is available and the stations reexamined per subsection (5) of this section. Station clusters of low concern shall receive no further consideration for active cleanup, unless new information indicates an increase of chemical contamination at the stations in question. Station clusters of low concern shall be evaluated by the department for improved source control and/or monitoring requirements of this chapter.

(5) **Reevaluation.** The department may at any time reexamine a station or group of stations to reevaluate and identify station clusters of potential concern following the procedures of subsection (2) of this section when new information demonstrates to the department's satisfaction that reexamination actions are necessary to fulfill the purposes of WAC 173-204-500 through 173-204-590.

AMENDATORY SECTION (Amending WSR 96-02-058, filed 12/29/95, effective 1/29/96)

WAC 173-204-520 ((~~Cleanup screening levels criteria.~~)) Sediment cleanup levels based on protection of the benthic community in marine and low salinity sediment. (1) **Applicability.**

((~~(a) The marine sediment cleanup screening levels chemical criteria, and the marine sediment biological effects criteria, and the marine sediment other toxic, radioactive, biological, or deleterious substance criteria, and the marine sediment nonanthropogenically affected criteria of this section~~)) This section defines sediment cleanup objectives and cleanup screening levels for contaminants based on protection of the benthic community in marine and low salinity sediment. They are used to:

(a) Identify and assess the hazard of sites under WAC 173-204-510 and 173-204-520;

(b) Establish sediment cleanup levels for sites and sediment cleanup units under WAC 173-204-560.

(2) **Marine sediment - Chemical criteria.** The chemical concentration criteria in Table IV establish the sediment cleanup objectives and cleanup screening levels chemical criteria for marine sediment. The criteria of this section shall apply to marine sediments ((~~within Puget Sound~~)) for toxicity to the benthic community.

(a) The sediment cleanup objectives of this section establish a no adverse effects level, including no acute or chronic adverse effects, to the benthic community. Chemical concentrations at or below the sediment cleanup objectives correspond to sediment quality that results in no adverse effects to the benthic community.

(b) The cleanup screening levels of this section establish a minor adverse effects level, including acute or chronic effects, on the benthic community. Chemical concentrations at or below the cleanup screening level but greater than the sediment cleanup objective correspond to sediment quality that results in minor adverse effects to the benthic community. The marine chemical and biological cleanup screening levels establish minor adverse effects as the level above which station clusters of potential concern are defined and may be defined as potential cleanup sites for benthic community toxicity, and at or below which station clusters of low concern are defined, per the procedures identified in WAC 173-204-510((~~(2)~~)) and 173-204-520. ((~~The cleanup screening levels also establish the levels above which station clusters of potential concern are defined as cleanup sites, per the procedures identified in WAC 173-204-530, Hazard assessment. The criteria in Table III and this section also establish minor adverse effects as the Puget Sound marine sediment minimum cleanup level to be used in evaluation of cleanup alternatives per the procedures of WAC 173-204-560, and selection of a site cleanup standard(s) per the procedures of WAC 173-204-570.~~

~~(b) Non-Puget Sound marine sediment cleanup screening levels and minimum cleanup levels criteria. Reserved. The department~~

~~shall determine on a case-by-case basis the criteria, methods, and procedures necessary to meet the intent of this chapter.~~))

(c) The cleanup screening level chemical criteria is exceeded when the sediment chemical concentration for an individual chemical is above the cleanup screening level in Table IV.

(d) The sediment cleanup objective chemical criteria is exceeded when the sediment chemical concentration for one or more chemicals is above the sediment cleanup objective in Table IV.

(e) Low salinity sediment cleanup screening levels ((~~and minimum cleanup levels~~)) criteria. Reserved: The department shall determine on a case-by-case basis the criteria, methods, and procedures necessary to meet the intent of this chapter.

((~~(d) Freshwater sediment cleanup screening levels and minimum cleanup levels criteria. Reserved: The department shall determine on a case-by-case basis the criteria, methods, and procedures necessary to meet the intent of this chapter.~~

~~(2) Puget Sound marine sediment cleanup screening levels and minimum cleanup levels chemical criteria. The chemical concentration criteria in Table III establish the Puget Sound marine sediment cleanup screening levels and minimum cleanup levels chemical criteria.~~

~~(a)~~)) (f) For purposes of this section, where laboratory analysis indicates a chemical is not detected in a ((~~sediment~~)) sample, the method detection limit and the practical quantitation limit shall be reported and shall be at or below the ((~~Marine~~)) sediment ((~~Quality Standards~~)) cleanup objectives chemical criteria ((~~value set~~)) in ((~~WAC 173-204-320(2)~~)) Table IV.

((~~(b)~~)) (g) Where chemical criteria in ((~~this~~)) Table IV represent the sum of individual compounds or isomers, the following methods shall be applied:

(i) Where chemical analyses identify an undetected value for every individual compound/isomer, then the single highest detection limit shall represent the sum of the respective compounds/isomers; and

(ii) Where chemical analyses detect one or more individual compound/isomers, only the detected concentrations will be added to represent the group sum.

((~~(c)~~)) (h) For some chemical criteria in Table IV, the listed ((~~chemical parameter~~)) criteria represent concentrations in parts per million, "normalized," or expressed, on a total organic carbon basis. To normalize to total organic carbon, the dry weight concentration for each parameter is divided by the decimal fraction representing the percent total organic carbon content (e.g., 0.01 means 1 percent) of the sediment per the equation: ppm OC = (ppb dry weight) / (percent total organic carbon x 1000).

((~~(d)~~)) (i) The LPAH criterion in Table IV represents the sum of the following "low molecular weight polynuclear aromatic hydrocarbon" compounds: Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, and Anthracene. The LPAH criterion is not the sum of the criteria values for the individual LPAH compounds as listed.

((~~(e)~~)) (j) The HPAH criterion in Table IV represents the sum of the following "high molecular weight polynuclear aromatic

hydrocarbon" compounds: Fluoranthene, Pyrene, Benz(a)anthracene, Chrysene, Total Benzofluoranthenes, Benzo(a)pyrene, Indeno(1,2,3,-c,d)pyrene, Dibenzo(a,h)anthracene, and Benzo(g,h,i)perylene. The HPAH criterion is not the sum of the criteria values for the individual HPAH compounds as listed.

((~~(f)~~)) (k) The ((~~TOTAL BENZOFLUORANTHENES~~)) total benzofluoranthenes criterion in Table IV represents the sum of the concentrations of the "B," "J," and "K" isomers.

Table ((~~III~~)) IV
((~~Puget Sound~~)) Marine Sediment
Sediment Cleanup Objectives and
Cleanup Screening Levels
((~~and~~
~~Minimum Cleanup Levels~~)) --
Chemical Criteria

((~~CHEMICAL PARAMETER~~	~~MG/KG DRY WEIGHT (PARTS PER MILLION (PPM) DRY)~~
~~ARSENIC~~	~~93~~
~~CADMIUM~~	~~6.7~~
~~CHROMIUM~~	~~270~~
~~COPPER~~	~~390~~
~~LEAD~~	~~530~~
~~MERCURY~~	~~0.59~~
~~SILVER~~	~~6.1~~
~~ZINC~~	~~960~~

~~CHEMICAL PARAMETER~~	~~MG/KG ORGANIC CARBON (PPM CARBON)~~
~~LPAH~~	~~780~~
~~NAPHTHALENE~~	~~170~~
~~ACENAPHTHYLENE~~	~~66~~
~~ACENAPHTHENE~~	~~57~~
~~FLUORENE~~	~~79~~
~~PHENANTHRENE~~	~~480~~
~~ANTHRACENE~~	~~1200~~
~~2-METHYLNAPHTHALENE~~	~~64~~
~~HPAH~~	~~5300~~
~~FLUORANTHENE~~	~~1200~~
~~PYRENE~~	~~1400~~
~~BENZ(A)ANTHRACENE~~	~~270~~
~~CHRYSENE~~	~~460~~
~~TOTAL BENZOFLUORANTHENES~~	~~450~~
~~BENZO(A)PYRENE~~	~~210~~
~~INDENO (1,2,3,-C,D) PYRENE~~	~~88~~
~~DIBENZO (A,H) ANTHRACENE~~	~~33~~
~~BENZO(G,H,I)PERYLENE~~	~~78~~
~~1,2-DICHLOROBENZENE~~	~~2.3~~
~~1,4-DICHLOROBENZENE~~	~~9~~
~~1,2,4-TRICHLOROBENZENE~~	~~1.8~~
~~HEXACHLOROBENZENE~~	~~2.3~~
~~DIMETHYL PHTHALATE~~	~~53~~
~~DIETHYL PHTHALATE~~	~~110~~
~~DI-N-BUTYL PHTHALATE~~	~~1700~~
~~BUTYL BENZYL PHTHALATE~~	~~64~~
~~BIS (2-ETHYLHEXYL) PHTHALATE~~	~~78~~
~~DI-N-OCTYL PHTHALATE~~	~~4500~~
~~DIBENZOFURAN~~	~~58~~
~~HEXACHLOROBUTADIENE~~	~~6.2~~
~~N-NITROSODIPHENYLAMINE~~	~~11~~
~~TOTAL PCB'S~~	~~65~~

~~CHEMICAL PARAMETER~~	~~UG/KG DRY WEIGHT (PARTS PER BILLION (PPB) DRY)~~
~~PHENOL~~	~~1200~~
~~2-METHYLPHENOL~~	~~63~~
~~4-METHYLPHENOL~~	~~670~~

~~CHEMICAL PARAMETER~~ ~~UG/KG DRY WEIGHT (PARTS PER BILLION (PPB) DRY)~~

~~2,4-DIMETHYL PHENOL — 29~~
~~PENTACHLOROPHENOL — 690~~
~~BENZYL ALCOHOL — 73~~
~~BENZOIC ACID — 650~~))

Chemical Parameter	**mg/kg Dry Weight (Parts per Million (ppm) Dry Weight)**	**mg/kg Dry Weight (Parts per Million (ppm) Dry Weight)**
	Sediment Cleanup Objective	**Cleanup Screening Level**
Arsenic	57	93
Cadmium	5.1	6.7
Chromium	260	270
Copper	390	390
Lead	450	530
Mercury	0.41	0.59
Silver	6.1	6.1
Zinc	410	960
Chemical Parameter	**mg/kg Organic Carbon (ppm carbon)**	**mg/kg Organic Carbon (ppm carbon)**
	Sediment Cleanup Objective	**Cleanup Screening Level**
LPAH	370	780
Naphthalene	99	170
Acenaphthylene	66	66
Acenaphthene	16	57
Fluorene	23	79
Phenanthrene	100	480
Anthracene	220	1200
2-Methyl Naphthalene	38	64
HPAH	960	5300
Fluoranthene	160	1200
Pyrene	1000	1400
Benz(a)anthracene	110	270
Chrysene	110	460
Total Benzofluoranthenes	230	450
Benzo(a)pyrene	99	210
Indeno(1,2,3 c,d) Pyrene	34	88
Dibenzo (a,h) Anthracene	12	33
Benzo (g,h,i) Perylene	31	78
1,2 Dichlorobenzene	2.3	2.3
1,4 Dichlorobenzene	3.1	9
1,2,4 Trichlorobenzene	0.81	1.8
Hexachlorobenzene	0.38	2.3
Dimethyl Phthalate	53	53
Diethyl Phthalate	61	110
Di-n-butyl Phthalate	220	1700
Butyl Benzyl Phthalate	4.9	64

Chemical Parameter	mg/kg Dry Weight (Parts per Million (ppm) Dry Weight)	mg/kg Dry Weight (Parts per Million (ppm) Dry Weight)
Bis (2-ethylhexyl) Phthalate	47	78
Di-n-octyl Phthalate	58	4500
Dibenzofuran	15	58
Hexachlorobutadiene	3.9	6.2
N-Nitrosodiphenylamine	11	11
Total PCBs	12	65
	ug/kg Dry Weight (Parts per Billion (ppb) Dry Weight)	**ug/kg Dry Weight (Parts per Billion (ppb) Dry Weight)**
Phenol	420	1200
2-Methylphenol	63	63
4-Methylphenol	670	670
2,4 Dimethyl Phenol	29	29
Pentachlorophenol	360	690
Benzyl Alcohol	57	73
Benzoic Acid	650	650

(3) **((~~Puget Sound~~)) Marine sediment ((~~cleanup screening levels and minimum cleanup level~~)) - Biological criteria.** The biological effects criteria ((~~of this subsection~~)) in Table V establish the ((~~Puget Sound~~)) marine sediment cleanup objectives and cleanup screening ((~~level, and the Puget Sound marine sediment minimum cleanup level criteria.~~

~~(a) The acute and chronic effects biological tests of WAC 173-204-315(1) shall be used to:~~

~~(i) Identify the Puget Sound marine sediment cleanup screening level for the purpose of screening sediment station clusters of potential concern using the procedures of WAC 173-204-510(2); and~~

~~(ii) Identify the Puget Sound marine sediment cleanup screening level for the purpose of identifying station clusters of low concern and/or cleanup sites using the hazard assessment procedures of WAC 173-204-530(4); and/or~~

~~(iii) Identify the Puget Sound marine sediment minimum cleanup level to confirm minimum cleanup level determinations using the procedures of WAC 173-204-570(3).~~

~~(b) When using biological testing to determine if station clusters exceed the cleanup screening level or to identify the minimum cleanup level for a contaminated site, test results from at least two acute effects tests and one chronic effects test shall be evaluated.~~

~~(c) The biological tests shall not be considered valid unless test results for the appropriate control and reference sediment samples meet the performance standards described in WAC 173-204-315(2).~~

~~(d)~~)) levels. The criteria of this section shall apply to marine sediments for toxicity to the benthic invertebrate community.

(a) The sediment cleanup objective biological criteria for a sampling station is exceeded when one of the biological test

results is above the sediment cleanup objective as described in Table V.

(b) The cleanup screening level ((~~and minimum cleanup level~~)) biological criteria for a sampling station is exceeded when:

(i) Any two of the biological test((~~s~~)) results for a sampling station exceed the ((~~criteria of WAC 173-204-320(3); or one of~~)) sediment cleanup objective in Table V; or

(ii) One of the biological test results for a sampling station exceeds the cleanup screening level in Table V and the following ((~~test determinations is made~~)):

((~~(i)~~)) (A) Amphipod: The test sediment has a higher (statistically significant, t test, $p \leq 0.05$) mean mortality than the reference sediment and the test sediment mean mortality is greater than a value represented by the reference sediment mean mortality plus thirty percent.

((~~(ii)~~)) (B) Larval: The test sediment has a mean survivorship of normal larvae that is less (statistically significant, t test, ((~~$p \leq 0.05$~~)) $p \leq 0.10$) than the mean normal survivorship in the reference sediment and the test sediment mean normal survivorship is less than seventy percent of the mean normal survivorship in the reference sediment (i.e., the test sediment has a mean combined abnormality and mortality that is greater than thirty percent relative to time-final in the reference sediment).

((~~(iii)~~)) (C) Benthic abundance: The test sediment has less than fifty percent of the reference sediment mean abundance of any two of the following major taxa: Class Crustacea, Phylum Mollusca or Class Polychaeta and the test sample abundances are statistically different (t test, $p \leq 0.05$) from the reference abundances.

((~~(iv)~~)) (D) Juvenile polychaete: The test sediment has a mean individual growth rate of less than fifty percent of the reference sediment mean individual growth rate and the test sediment mean individual growth rate is statistically different (t test, $p \leq 0.05$) from the reference sediment mean individual growth rate.

((~~(4) Puget Sound marine sediment cleanup screening levels and minimum cleanup levels human health criteria. Reserved: The department may determine on a case-by-case basis the criteria, methods, and procedures necessary to meet the intent of this chapter.~~

~~(5) Puget Sound marine sediment cleanup screening levels and minimum cleanup levels~~)) (c) The acute and chronic effects biological tests of Table VI shall be used to:

(i) Confirm designation of marine sediments for benthic toxicity. The department may require biological testing to confirm the designation of marine sediment which either passes or fails the chemical criteria established in subsection (2) of this section. If required, the sediment shall be tested using the procedures in (d) of this subsection.

(ii) Establish the marine sediment cleanup objective and cleanup screening level for identifying sediment station clusters of potential concern for benthic toxicity using the procedures of WAC 173-204-510(2); and

(iii) Establish the marine sediment cleanup objective or cleanup screening level for identifying station clusters of low concern using the procedures of WAC 173-204-510(2).

(d) To designate sediment quality using biological criteria, a minimum of the following shall be included in the suite of biological tests for each sediment sample as described in Table VI:

(A) Two acute effects tests; and

(B) One chronic test.

(e) The appropriate control and reference sediment samples shall meet the performance standards described in Table VI. Selection and use of reference sediment must be approved by the department and shall meet the performance standards of Table VI. The department may approve a different performance standard based on latest scientific knowledge.

(f) Use of alternate biological tests may be required by the department and shall be subject to the review and approval of the department under WAC 173-204-130(4).

(g) Any person who designates test sediments using the procedures of this section shall meet the sampling and testing plan requirements of WAC 173-204-600 and records management requirements of WAC 173-204-610. Test sediments designated using the procedures of this section shall be sampled and analyzed using methods approved by the department, and shall use an appropriate quality assurance/quality control program, as determined by the department.

(4) **Marine sediment - Other toxic, radioactive, biological, or deleterious substances criteria.** Other toxic, radioactive, biological, or deleterious substances in, or on, sediments shall be at or below levels which cause minor adverse effects in marine biological resources((~~, or which correspond to a significant health risk to humans, as determined by the department~~)). The department shall determine on a case-by-case basis the criteria, methods, and procedures necessary to meet the intent of this chapter.

((~~(6) Puget Sound marine sediment cleanup screening levels and minimum cleanup levels nonanthropogenically affected sediment criteria. Whenever the nonanthropogenically affected sediment quality is of a lower quality (i.e., higher chemical concentrations, higher levels of adverse biological response, or posing a higher threat to human health) than the applicable cleanup screening levels or minimum cleanup levels criteria established under this section, the existing sediment chemical and biological quality shall be identified on an area-wide basis as determined by the department, and used in place of the standards of WAC 173-204-520.~~))

Table V: Marine sediment cleanup objectives, cleanup screening levels, and performance standards for each biological test. C = Control; R = Reference; T = Test; F = Final; M = Mortality; N = Normal Survivorship expressed as actual counts; I = Initial count; MIG = Mean Individual Growth Rate expressed in mg/ind/day AFDW*; ML = Mean Light output; BLD = Blank Corrected Light Decrease; SD = Significantly Different; an exceedance of the criteria requires a statistical significance at p = 0.05 for Amphipod, Juvenile Polychaete, Microtox tests; an exceedance of the

criteria requires a statistical significance at p = 0.10 for the Larval test.

Biological Test/Endpoint	Performance Control	Standard Reference	Sediment Cleanup Objective for each biological test	Cleanup Screening Level for each biological test
Amphipod				
10-day Mortality	$M_C < 10\%$	$M_R < 25\%$	$M_T > 25\%$ Absolute and M_T vs. M_R SD ($p = 0.05$)	$M_T - M_R > 30\%$ and M_T vs. M_R SD ($p = 0.05$)
Larval				
Bivalve or Echinoderm Abnormality/Mortality	$N_C / I > 0.70$		$N_T / N_R < 0.85$ and N_T vs. N_R SD ($p = 0.10$)	$N_T / N_R > 0.70$ and N_T vs. N_R SD ($p = 0.10$)
Juvenile Polychaete				
***Neanthes* 28-day Growth**	$M_C < 10\%$ and $MIG_C > 0.72$ mg/individual/day (or case-by-case)	$MIG_R / MIG_C > 0.80$	$MIG_T / MIG_R < 0.70$ and MIG_T vs. MIG_R SD ($p = 0.05$)	$MIG_T / MIG_R < 0.50$ and MIG_T vs. MIG_R SD ($p = 0.05$)
Microtox				
Microtox Decreased Luminescence	case-by-case	case-by-case	$ML_T / ML_R < 0.80$ and ML_T vs. ML_R SD ($p = 0.05$)	

Table VI: Types of marine sediment biological tests, species, and applicable endpoints.

Species/Class, biological test, and endpoint	Acute effects biological test	Chronic effects biological test
Amphipod: *Rhepoxynius abronius, Ampelisca abdita, Eohaustorius estuarius*		
10-day Mortality	X	
Larval: *Crassostrea gigas* (Pacific oyster), *Mytilus (edulis) galloprovincialis* (Blue mussel), *Strongylocentrotus purpuratus* (Purple sea urchin), *Dendraster excentricus* (Sand dollar)		
Mortality/Abnormality	X	
Juvenile Polychaete:		
Neanthes arenaceodentata		
28-day Growth		X
Microtox: *Vibrio fisheri*		
15-minute exposure; Decreased luminescence		X
Benthic Infauna: Class Crustacea, Polychaeta, Phylum Mollusca		X

AMENDATORY SECTION (Amending WSR 96-02-058, filed 12/29/95, effective 1/29/96)

WAC 173-204-530 Hazard assessment and site identification. (1) **Purpose.** A hazard assessment shall be performed to gather existing and available information to further characterize each station cluster of potential concern identified per WAC 173-204-510.

(2) **Hazard assessment requirements.** ((~~Onsite~~)) On-site dischargers, lessees, landowners, and adjacent dischargers shall submit, upon the department's request, all existing and available information or, if determined necessary by the department, shall perform sampling for a known or suspected release that would enable the department to:

(a) Determine the concentration and/or areal extent and depth of sediment contamination at the station cluster of potential concern by:

(i) Identifying the contaminants exceeding the applicable sediment ((~~quality standards~~)) cleanup objectives of WAC ((~~173-204-320 through 173-204-340~~)) 173-204-562 and 173-204-563;

(ii) Identifying individual stations within the station cluster of potential concern which exceed the sediment cleanup screening levels criteria of WAC ((~~173-204-520~~)) 173-204-562 and 173-204-563;

(iii) Identifying the level of toxicity to the applicable biological test organisms of WAC ((~~173-204-320 through 173-204-340~~)) 173-204-562 and 173-204-563;

(iv) Determining where the applicable sediment ((~~quality standards~~)) cleanup objectives of WAC ((~~173-204-320 through 173-204-340~~)) 173-204-562 and 173-204-563, for any given contaminant, is met;

(v) Determining if concentrations of chemicals exist that ((~~potentially present a significant threat to human health~~)) exceed applicable cleanup screening levels of WAC 173-204-560;

(vi) Defining the location where the ((~~minimum cleanup~~)) cleanup screening level as defined in WAC ((~~173-204-570~~)) 173-204-560 is met.

(b) Identify and characterize the present and historic source or sources of the contamination.

(c) Identify the location of sediment impact zones authorized under WAC 173-204-415.

(d) Identify sensitive resources in the vicinity of the station cluster of potential concern.

(e) ((~~Provide~~)) Compile other information as determined necessary by the department for ((~~ranking~~)) evaluating sites under WAC ((~~173-204-540~~)) 173-204-530.

((~~(3) The department shall also~~)) (f) Compile existing and available information from other federal, state, and local governments ((~~that pertain to the topics in subsection (2) of this section~~)).

((~~(4)~~)) (3) **Identification of cleanup sites.** To identify cleanup sites, the department shall use all available information

of acceptable quality gathered from the hazard assessment to evaluate station clusters of potential concern identified pursuant to WAC 173-204-510(2). For the purpose of identifying a cleanup site per the procedures of this subsection, three stations with the highest contaminant concentration for any particular contaminant or the highest degree of biological effects as identified in WAC ((~~173-204-520~~)) 173-204-562 and 173-204-563 are selected from a station cluster of potential concern. This procedure may be repeated for multiple chemicals ((~~identified in WAC 173-204-520,~~)) recognizing that the three stations with the highest concentration for each particular contaminant may be different and the respective areas for all chemicals may overlap. The department shall review the list of station clusters of potential concern to identify cleanup sites via the following process:

(a) ((~~Identify if available, three stations within the station cluster of potential concern with the highest level of biological effects for the biological tests identified in WAC 173-204-315(1).~~

~~(b)~~)) Station clusters of potential concern ((~~where the level of biological effects for any three stations within the station cluster of potential concern exceeds the cleanup screening levels of WAC 173-204-520(3)~~)) that meet the conditions in WAC 173-204-510(2)(a)(ii) or (b)(i) shall be defined as cleanup sites.

((~~(c) Identify if available, the three stations within a station cluster of potential concern with the highest concentration of each chemical contaminant identified in WAC 173-204-520, Cleanup screening levels criteria.~~)) (b) For the purpose of identifying a cleanup site per the procedures of this subsection, stations that meet the biological standards of WAC ((~~173-204-520~~)) 173-204-562(3) through 173-204-563(3) shall not be included in the evaluation of chemical contaminant concentrations for benthic community toxicity.

((~~(d) For each contaminant identified in (c) of this subsection, determine the average concentration for the contaminant at the three stations identified in (c) of this subsection.~~

~~(e) Station clusters of potential concern for which any average chemical concentration identified in (d) of this subsection exceeds the cleanup screening level chemical criteria of Table III shall be defined as cleanup sites.~~

~~(f)~~)) (c) After completion of the hazard assessment, if ((~~neither of~~)) the conditions of (a) or (b) ((~~or (e)~~)) of this subsection do not apply, then the station cluster is defined as a station cluster of low concern for benthic community toxicity.

((~~(g)~~)) (d) Station clusters of potential concern where the department determines that ((~~any~~)) each of three stations within the station cluster of potential concern exceed the ((~~sediment cleanup screening levels~~)) applicable cleanup screening level human health and background criteria in WAC 173-204-560(4) or the other toxic, radioactive, biological, or deleterious substances criteria or the nonanthropogenically affected criteria of WAC ((~~173-204-520~~)) 173-204-562 and 173-204-563, ((~~shall~~)) may be defined as cleanup sites or areas for potential further investigation.

AMENDATORY SECTION (Amending Order 90-41, filed 3/27/91, effective 4/27/91)

WAC 173-204-540 ((~~Ranking~~)) Evaluation and ((~~list~~)) listing of sites. (1) **Purpose.** The department shall prepare and maintain a list of contaminated sediment sites in the order of their relative ((~~hazard ranking~~)) risk to human health and the environment. From this list, the department shall select sites where action shall be taken.

(2) **Site ((ranking)) evaluation.** The department shall evaluate each sediment cleanup site identified by the procedures in WAC ((~~173-204-530~~)) 173-204-520 on a consistent basis using ((~~the procedure described in *Sediment Ranking System ("SEDRANK"), January 1990*, and all additions and revisions thereto or other~~)) procedures approved by the department. The purpose of ((~~ranking~~)) the evaluation is to estimate, based on technical information compiled during the hazard assessment procedures in WAC ((~~173-204-530~~)) 173-204-520, the relative potential risk posed by the site to human health and the environment. Information obtained during the hazard assessment, ((~~plus any additional data specified in "SEDRANK,"~~)) shall be included in the site ((~~hazard ranking~~)) evaluation.

(3) **Considerations in ((ranking)) site evaluation.** In conducting sediment site ((~~ranking~~)) evaluations, the department shall assess both human health hazard and ecological hazard, and consider chemical toxicity, affected resources, and site characteristics for both types of hazards. The department shall also use best professional judgment and other information as necessary on a case-by-case basis to conduct site ((~~ranking~~)) evaluations.

(4) **Site ((reranking)) reevaluations.** The department may, at its discretion, ((~~rerank~~)) reevaluate a site. To ((~~rerank~~)) reevaluate a site, the department shall use any additional information within the scope of the ((~~hazard ranking~~)) evaluation criteria and best professional judgment to establish that a significant change ((~~in rank~~)) should result.

(5) **((~~List~~)) Listing of ((~~ranked~~)) sites.**

(a) Contaminated sediment sites ((~~that are ranked via "SEDRANK"~~)) shall be placed on a list ((~~in the order of their relative hazard ranking~~)). The list shall describe the current status of cleanup action at each site ((~~and be updated on an annual basis. The department may change a site's status to reflect current conditions on a more frequent basis. The status for each site shall be identified as one or more of the following:~~

~~(i) Sites awaiting cleanup action;~~

~~(ii) Sites where voluntary, incidental, partial or department initiated cleanup actions, as defined in WAC 173-204-550, are in progress;~~

~~(iii) Sites where a cleanup action has been completed and confirmational monitoring is underway;~~

~~(iv) Sites with sediment recovery zones authorized under WAC 173-204-590; and/or~~

~~(v) Other categories established by the department~~)).

(b) The department shall routinely publish and make the list available to be used in conjunction with a review of ongoing and proposed regulatory actions to determine where and when a cleanup action should be taken. The department shall also make the list available to landowners and dischargers at or near listed sites, and to the public.

(6) **Site delisting.**

(a) The department may remove a site from the list only after it has determined that:

(i) All cleanup actions ((~~except~~)), including confirmational monitoring ((~~have been completed and compliance with the site cleanup study and report~~)) and all other actions required in the cleanup action plan or equivalent document under WAC 173-204-580, have been completed and all sediment cleanup standard(s) ((~~has~~)) have been achieved; or

(ii) The listing of the site was erroneous.

(b) A site owner or operator may request that a site be removed from the list by submitting a petition to the department. The petition shall state the reason for the site delisting request, and as determined appropriate by the department, shall include thorough documentation of all investigations performed, all cleanup actions taken, and all compliance monitoring data and results to demonstrate to the department's satisfaction that the ((~~site~~)) sediment cleanup standards have been achieved. The department may require payment of costs incurred((~~, including an advance deposit,~~)) for review and verification of the work performed. The department shall review such petitions, however the timing of the review shall be at its discretion and as resources may allow.

(c) The department shall maintain a record of sites that have been removed from the list under (a) of this subsection. This record shall be made available to the public on request.

(d) The department shall provide public notice and an opportunity to comment when the department proposes to remove a site from the list.

(7) **Site relisting ((~~of sites~~))**. The department may relist a site which has previously been removed if it determines that the site requires further cleanup action.

(8) ((~~**Delisting notice.** The department shall provide public notice and an opportunity to comment when the department proposes to remove a site from the list.~~

~~(9)~~)) **Relationship to hazardous sites list.** The department may additionally evaluate cleanup sites on the site list developed under subsection (5) of this section for possible inclusion on the hazardous sites list published under WAC 173-340-330.

AMENDATORY SECTION (Amending Order 90-41, filed 3/27/91, effective 4/27/91)

WAC 173-204-550 Types of cleanup and authority. (1) **Purpose.** ((~~The department acknowledges that cleanups of contaminated sediment sites can occur under the authority of chapter 90.48 or 70.105D RCW. Sediment cleanups may also be initiated by~~)) Cleanup actions at sites and sediment cleanup units may be conducted under the authority of chapter 70.105D RCW or the federal government pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (42 U.S.C. §§ 9601 et seq.) (CERCLA). This section describes the department's role in ((~~department initiated~~)) these and other cleanup actions.

(2) **Administrative authority.** The department shall use best professional judgment and other information as necessary on a case-by-case basis to determine the appropriate administrative authority for conducting((~~,~~)) or requiring ((~~contaminated sediment~~)) cleanup actions ((~~based on, but not limited to,~~)). The department may initiate a cleanup action under this chapter or may determine that another authority is more appropriate. When determining the appropriate administrative authority at a site, the department's decision may include the following considerations:

(a) Source of contaminants requiring cleanup including spills, dredging actions, and wastewater and/or storm water discharges;

(b) Significance of contamination threat to human health and the environment including the degree of contamination and types and number of contaminants;

(c) Public ((~~perception~~)) comments received concerning the contaminant threat to human health and the environment;

(d) ((~~Personal or corporate financial status of the landowner(s) and/or discharger(s);~~

~~(e)~~)) Enforcement compliance history of the landowner(s) and/or discharger(s);

((~~(f)~~)) (e) Status of existing or pending federal, state, or local legal orders or administrative actions; and

((~~(g)~~)) (f) Size of cleanup action proposed or determined necessary.

(3) ((~~The types of cleanup actions below establish scenarios recognized by the department which may occur to effect cleanup of contaminated sediment sites. All of these types of cleanup actions shall be subject to administrative review and approval of the department under chapters 90.48 and/or 70.105D RCW.~~

~~(a) Department initiated cleanup. Department initiated cleanup actions occur when the department uses its authority under chapter 90.48 and/or 70.105D RCW to conduct or require and/or otherwise effect cleanup to meet the intent of this chapter.~~

~~(b) Voluntary cleanup. Voluntary cleanup actions are initiated by parties other than the department. The department shall encourage voluntary cleanup actions whenever possible, and as early as possible, to meet the intent of this chapter.~~

~~(c) Incidental cleanup. Incidental cleanup actions are conducted when other state or federally permitted activities are~~

~~ongoing in and/or around the contaminated sediment site. Early coordination of incidental cleanup actions with the department is encouraged to meet the intent of this chapter, chapter 70.105D RCW, and chapter 90.48 RCW, as appropriate.~~

~~(d) Partial cleanup. Partial cleanup actions may be conducted when completion of cleanup study requirements under WAC 173-204-560 has identified and proposed discrete site units and cleanup standards, the department has approved the selection of the partial cleanup alternative per the standards of WAC 173-204-580, and the department has determined that awaiting action or decision on conducting a complete site cleanup would have a net detrimental effect on the environment or human health.~~

~~(e) CERCLA cleanup. Pursuant to the federal Comprehensive Environmental Response, Compensation and Liability Act, the department may identify chapter 173-204 WAC as an applicable state requirement for cleanup actions conducted by the federal government.~~)) **Types of cleanups.** The following administrative options may be used to conduct cleanup actions at sites and sediment cleanup units. These options shall be subject to review and approval by the department under chapter 70.105D RCW.

(a) **Department-conducted or supervised cleanups.** The department may conduct or require others to conduct cleanup actions at sites or sediment cleanup units under chapter 70.105D RCW.

(b) **Federal-conducted or supervised cleanups.** The federal government may conduct or require others to conduct cleanup actions at sites or sediment cleanup units under CERCLA. When evaluating federal cleanup actions, the department shall consider all requirements in this chapter authorized under chapter 70.105D RCW to be legally applicable requirements under 42 U.S.C. 9621(d). Federal cleanup actions may be used by the department to meet the requirements of this chapter provided:

(i) The cleanup action is consistent with the requirements in this chapter;

(ii) The state has concurred with the cleanup action; and

(iii) An opportunity was provided for the public to comment on the cleanup action.

(c) **Incidental cleanups.** Incidental cleanup actions may be conducted when other state or federally permitted activities are ongoing in and/or around the site. Early coordination of incidental cleanup actions with the department is encouraged to ensure such actions meet the requirements in this chapter and chapter 70.105D RCW.

AMENDATORY SECTION (Amending WSR 96-02-058, filed 12/29/95, effective 1/29/96)

WAC 173-204-560 ((~~Cleanup~~)) Remedial investigation and feasibility study. (1) **Purpose.** ((~~This section describes cleanup~~

~~study plan and report standards which meet the intent of cleanup actions required under authority of chapter 90.48 and/or 70.105D RCW, and/or this chapter. Cleanup actions required under authority of chapter 70.105D RCW shall also meet all standards of chapter 173-340 WAC, the Model Toxics Control Act cleanup regulation. The cleanup study plan and report standards in this chapter include activities to collect, develop, and evaluate sufficient information to enable consideration of cleanup alternatives and selection of a site-specific sediment cleanup standard prior to making a cleanup decision. Each person performing a cleanup action to meet the intent of this chapter shall submit a cleanup study plan and cleanup study report to the department for review and written approval prior to implementation of the cleanup action. The department may approve the cleanup study plan as submitted, may approve the cleanup study plan with appropriate changes or additions, or may require preparation of a new cleanup study plan.~~)) The purpose of a remedial investigation/feasibility study is to collect, develop, and evaluate sufficient information regarding a site or sediment cleanup unit for the department to establish sediment cleanup standards and select a cleanup action under this chapter.

(2) **Scope ((~~of cleanup study plan~~)).** The scope of a ((~~cleanup study plan shall~~)) remedial investigation/feasibility study depends on ((~~the specific site informational needs, the site hazard,~~)) many factors, including the nature and extent of contamination, the exposure pathways of concern, the natural resources potentially impacted by the contamination, the characteristics of the site or sediment cleanup unit, the type of cleanup action ((~~proposed~~)) alternatives likely to be evaluated under WAC 173-204-570 through 173-204-580, and the authority cited by the department to require cleanup. ((~~In establishing the necessary scope of the cleanup study plan, the department may consider cost mitigation factors, such as the financial resources of the person(s) responsible for the cleanup action.~~)) In all cases, sufficient information must be collected, developed, and evaluated to enable the ((~~appropriate selection of a~~)) department to establish sediment cleanup standards ((~~under WAC 173-204-570 and a cleanup action decision under WAC 173-204-580. The sediment cleanup study plan shall address:~~)) and select cleanup actions under this chapter.

(3) **Administrative requirements.**

(a) Unless otherwise directed by the department, a remedial investigation/feasibility study must be completed before a cleanup action is selected under WAC 173-204-570 and 173-204-580.

(b) Before conducting a remedial investigation, a work plan must be submitted to and approved by the department.

(c) As directed by the department, a remedial investigation and a feasibility study may be conducted as separate steps in the cleanup process and submitted as separate reports or combined into a single step and report.

(d) Remedial investigation and feasibility study reports must be submitted to the department for review and approval.

(4) **Remedial investigation work plan.** The remedial

investigation work plan shall include the following information:

(a) Public ((~~information/education~~)) participation plan;

(b) ((~~Site investigation and cleanup alternatives evaluation;~~ ~~(c)~~)) A summary of available information regarding the site;

(c) A conceptual site model;

(d) Cleanup action alternatives that are likely to be considered in the feasibility study;

(e) Sampling plan and recordkeeping in compliance with WAC 173-204-600 through 173-204-610 and department guidance; and

((~~(d)~~)) (f) Site safety((~~.~~

~~(3) Cleanup study plan public information/education requirements~~)) plan to meet the requirements of the Occupational Safety and Health Act of 1970 (29 U.S.C. Sec. 651 et seq.) and the Washington Industrial Safety and Health Act (chapter 49.17 RCW), and regulations promulgated pursuant thereto. These requirements are subject to enforcement by the designated federal and state agencies. Actions taken by the department under this chapter do not constitute an exercise of statutory authority within the meaning of section (4)(b)(1) of the Occupational Safety and Health Act.

(g) A schedule for completion of the remedial investigation/feasibility study; and

(h) Other information as required by the department.

(5) **Public participation plan requirements**. The ((~~cleanup study~~)) public participation plan shall encourage coordinated and effective public involvement commensurate with the nature of the proposed cleanup action, the level of public concern, and the existence of, or potential for adverse effects on biological resources and/or a threat to human health. The ((~~cleanup study~~)) plan shall ((~~address proposed activities for~~)) include the following ((~~subjects~~)) information:

(a) When public notice will occur, the length of the comment periods accompanying each notice, the potentially affected vicinity, and any other areas to be provided notice;

(b) Where public information ((~~repositories~~)) will be located to provide ((~~site~~)) information ((~~to the public~~)) about the site;

(c) Methods for identifying the public's concerns((~~, e.g.,~~)) such as interviews, questionnaires, and community group meetings((~~, etc.~~));

(d) Methods for providing information to the public((~~, e.g.,~~)) such as press releases, public meetings, fact sheets, ((~~etc.~~)) and listservs;

(e) Coordination of public participation requirements mandated by other federal, state, or local laws;

(f) Amendments to the planned public involvement activities; and

(g) Any other ((~~elements that~~)) information required by the department ((~~determines to be appropriate for inclusion in the cleanup study plan~~)).

((~~(4) Cleanup study plan site investigation and cleanup alternatives evaluation requirements. The content of the cleanup study plan for the site investigation and cleanup alternatives evaluation is determined by the type of cleanup action selected as~~

~~defined under WAC 173-204-550. As determined by the department, the cleanup study plan shall address the following subjects:~~)) (6) **Remedial investigation report.** The remedial investigation report shall include the following information:

(a) General site information. General information, including: Project title; name, address, and phone number of project coordinator; legal description of the cleanup site; area and volume dimensions of the site; present and past owners and operators; present owners and operators of contaminant source discharges to the site((~~; chronological listing of past owners and operators of contaminant source discharges to the site~~)) and their respective operational history; and other pertinent information ((~~determined~~)) required by the department.

(b) Site conditions map. An existing site conditions map which illustrates site features as follows:

(i) Property boundaries((~~.~~));

(ii) The site boundary as defined by the individual contaminants exceeding the ((~~applicable~~)) proposed sediment ((~~quality~~)) cleanup standards ((~~of~~)) as defined in WAC ((~~173-204-320 through 173-204-340~~)) 173-204-560. Delineations shall be made at the point where the concentration of the contaminants would meet the:

(A) Proposed sediment cleanup standards;

(B) Proposed sediment cleanup objectives; ((~~and~~

~~(B) Minimum cleanup level~~)) (C) Proposed cleanup screening levels; and

((~~(C) Recommended cleanup standards.~~)) (D) Proposed sediment cleanup unit boundary, if applicable;

(iii) Surface and subsurface structures topography((~~.~~

~~(iv) Surface and subsurface structures.~~

~~(v)~~));

(iv) Utility lines((~~.~~));

((~~(vi)~~)) (v) Navigation lanes((~~.~~

~~(vii) Current and ongoing sediment sources.~~

~~(viii)~~)); and

(vi) Other pertinent information determined by the department.

(c) Site investigation. Sufficient investigation to characterize the distribution of sediment contamination ((~~present at the site~~)), and the threat or potential threat to human health and the environment. Where applicable to the site, these investigations shall address the following:

(i) Surface water and sediments. Investigations of sediment, surface water hydrodynamics, and sediment transport mechanisms to characterize significant hydrologic features such as:

(A) Site surface water drainage patterns, quantities and flow rates((~~,~~));

(B) Areas of sediment erosion and deposition including estimates of sedimentation rates((~~, and actual or potential~~));

(C) Contaminant migration routes to and from the site and within the site((~~. Sufficient surface water and sediment sampling shall be performed to adequately characterize the~~));

(D) Areal and vertical distribution and concentrations of contaminants in sediment.

(E) Recontamination potential of sediments which are likely to influence the type and rate of contaminant migration, or are likely to affect the ability to implement alternative cleanup actions ((~~shall be characterized;~~)).

(ii) Geology and groundwater system characteristics. Investigations of site geology and hydrogeology to ((~~adequately~~)) characterize the physical properties and distribution of sediment types, and the characteristics of groundwater flow rate, groundwater gradient, groundwater discharge areas, and groundwater quality data which may affect site cleanup action alternatives evaluations;

(iii) Climate. Information regarding local and regional climatological characteristics which are likely to affect surface water hydrodynamics, groundwater flow characteristics, and migration of sediment contaminants such as: Seasonal patterns of rainfall; the magnitude and frequency of significant storm events; and prevailing wind direction and velocity;

(iv) Land use. Information characterizing human populations exposed or potentially exposed to sediment contaminants released at or from the site and present and proposed uses and zoning for shoreline areas contiguous with the site; and

(v) Natural resources and ((~~ecology~~)) habitat. Information to determine the impact or potential impact of sediment contaminants from the site on natural resources and ((~~ecology~~)) sensitive habitat of the area such as((~~: Sensitive environment, local and regional habitat,~~)) spawning areas, nursery grounds, shellfish or eelgrass beds and other plant and animal species((~~, and other environmental receptors~~)).

(d) ((~~Sediment~~)) Current and potential contaminant sources. A description of the location, quantity, areal and vertical extent, concentration and sources of active and inactive waste disposal and other sediment contaminant discharge sources ((~~which affect or potentially affect the site~~)). Where determined relevant by the department, the following information shall be obtained by the department from the responsible discharger:

(i) The physical and chemical characteristics, and the biological effects of site sediment contaminant sources;

(ii) The status of source control actions for permitted and unpermitted ((~~site sediment~~)) contaminant sources; and

(iii) A recommended compliance time frame for ((~~known~~)) permitted ((~~and unpermitted site sediment~~)) contaminant sources which affect or potentially affect implementation of the timing and scope of the site cleanup action alternatives.

(e) ((~~Human health risk assessment. The current and potential threats to human health that may be posed by sediment site contamination shall be evaluated using a risk assessment procedure approved by the department.~~

~~(f)~~)) Any other information required by the department.

(7) **Feasibility study report.** The feasibility study report shall include the following:

(a) If the feasibility study is not combined with the remedial investigation in one report, a summary of the remedial investigation results including:

(i) Conceptual site model to provide the basis from which cleanup action alternatives are developed and evaluated;

(ii) The proposed biologically active zone;

(iii) For each contaminant at the site, the proposed sediment cleanup standards; and

(iv) Maps, cross-sections, and calculations illustrating the location, estimated amount and concentration distribution of hazardous substances above proposed sediment cleanup standards and the proposed sediment cleanup objective and cleanup screening level;

(b) Results of any additional investigation conducted after completion of the remedial investigation report;

(c) Cleanup action alternatives. Each ((~~cleanup~~)) feasibility study ((~~plan~~)) shall include an evaluation of alternative cleanup actions that protect human health and the environment by eliminating, reducing, or otherwise controlling risks posed through each exposure pathway and migration route. The number and types of alternatives to be evaluated shall take into account the characteristics and complexity of the site((~~.~~

~~(i) The proposed site cleanup alternatives may include establishment of site units, as defined in WAC 173-204-200(24), with individual cleanup standards within the range required by WAC 173-204-570, based on site physical characteristics and complexity, and cleanup standard alternatives established on consideration of cost, technical feasibility, and net environmental impact.~~

~~(ii) The proposed site cleanup alternatives may include establishment~~)) and be evaluated using the requirements in WAC 173-204-570;

(d) Identification and evaluation of a reasonable number and type of alternatives;

(e) Identification of alternatives eliminated that do not meet the requirements in WAC 173-204-570;

(f) Documentation of the alternatives evaluation process. For each alternative evaluated include the following:

(i) The location and estimated amount of each contaminant to be removed or treated by the alternative and the estimated time frame in which removal or treatment will occur; and

(ii) The location, estimated amount, and projected concentration distribution of each contaminant remaining on-site above proposed sediment cleanup levels after implementation of the alternative;

(g) The preferred remedy and the basis for selection;

(h) Identification of proposed sediment cleanup units within the site, if applicable;

(i) Applicable local, state and federal laws specific to the proposed preferred remedy, including a description of permit/approval conditions identified in consultation with the permitting agencies;

(j) Identification of ((~~a~~)) any proposed sediment recovery zone ((~~as authorized~~)) and justification for this zone under WAC 173-204-590((~~, Sediment recovery zones~~)). Establishment or expansion of a sediment recovery zone shall not be used as a substitute for active cleanup actions, when such actions are

practicable and meet the ((~~standards~~)) requirements of WAC ((~~173-204-580~~)) 173-204-570. ((~~The cleanup study plan shall include the following information for evaluation of sediment recovery zone alternatives:~~

~~(A) The time period during which a sediment recovery zone is projected to be necessary based on source loading and net environmental recovery processes determined by application of the department's sediment recovery zone computer models "CORMIX," "PLUMES," and/or "WASP," or an alternate sediment recovery zone model(s) approved by the department under WAC 173-204-130(4) as limited by the standards of this section and the department's best professional judgment;~~

~~(B) The legal location and landowner(s) of property proposed as a sediment recovery zone;~~

~~(C) Operational terms and conditions including, but not limited to proposed confirmational monitoring actions for discharge effluent and/or receiving water column and/or sediment chemical monitoring studies and/or bioassays to evaluate ongoing water quality, sediment quality, and biological conditions within and adjacent to the proposed or authorized sediment recovery zone to confirm source loading and recovery rates in the proposed sediment recovery zone.~~

~~(D) Potential risks posed by the proposed sediment recovery zone to human health and the environment;~~

~~(E) The technical practicability of elimination or reduction of the size and/or degree of chemical contamination and/or level of biological effects within the proposed sediment recovery zone; and~~

~~(F) Current and potential use of the sediment recovery zone, surrounding areas, and associated resources that are, or may be, affected by releases from the zone.~~

~~(G) The need for institutional controls or other site use restrictions to reduce site contamination risks to human health.~~

~~(iii) A phased approach for evaluation of alternatives may be required for certain sites, including an initial screening of alternatives to reduce the number of potential remedies for the final detailed evaluation. The final evaluation of cleanup action alternatives that pass the initial screening shall consider the following factors:~~

~~(A) Overall protection of human health and the environment, time required to attain the cleanup standard(s), and on-site and offsite environmental impacts and risks to human health resulting from implementing the cleanup alternatives;~~

~~(B) Attainment of the cleanup standard(s) and compliance with applicable federal, state, and local laws;~~

~~(C) Short-term effectiveness, including protection of human health and the environment during construction and implementation of the alternative; and~~

~~(D) Long-term effectiveness, including degree of certainty that the alternative will be successful, long-term reliability, magnitude of residual, biological and human health risk, and effectiveness of controls for ongoing discharges and/or controls required to manage treatment residues or remaining wastes cleanup and/or disposal site risks;~~

~~(g) Ability to be implemented. The ability to be implemented including the potential for landowner cooperation, consideration of technical feasibility, availability of needed offsite facilities, services and materials, administrative and regulatory requirements, scheduling, monitoring requirements, access for construction, operations and monitoring, and integration with existing facility operations and other current or potential cleanup actions;~~

~~(h) Cost, including consideration of present and future direct and indirect capital, operation, and maintenance costs and other foreseeable costs;~~

~~(i) The degree to which community concerns are addressed;~~

~~(j) The degree to which recycling, reuse, and waste minimization are employed; and~~))

(k) Proposed monitoring plan during and after cleanup consistent with the provisions in WAC 173-204-600;

(l) Environmental impact. Sufficient information shall be provided to fulfill the requirements of chapter 43.21C RCW, the State Environmental Policy Act, for the proposed preferred remedy. Discussions of significant short-term and long-term environmental impacts, significant irrevocable commitments of natural resources, significant alternatives including mitigation measures, and significant environmental impacts which cannot be mitigated shall be included.

((~~(5) Cleanup study plan -- sampling plan and recordkeeping requirements. The cleanup study plan shall address proposed sampling and recordkeeping activities to meet the standards of WAC 173-204-600, Sampling and testing plan standards, and WAC 173-204-610, Records management, and the standards of this section.~~

~~(6) Cleanup study plan site safety requirements. The cleanup study plan shall address proposed activities to meet the requirements of the Occupational Safety and Health Act of 1970 (29 U.S.C. Sec. 651 et seq.) and the Washington Industrial Safety and Health Act (chapter 49.17 RCW), and regulations promulgated pursuant thereto. These requirements are subject to enforcement by the designated federal and state agencies. Actions taken by the department under this chapter do not constitute an exercise of statutory authority within the meaning of section (4)(b)(1) of the Occupational Safety and Health Act.~~

~~(7) Cleanup study report. Each person performing a cleanup action to meet the intent of this chapter shall submit a cleanup study report to the department for review and written approval of a cleanup decision prior to implementation of the cleanup action. The sediment cleanup study report shall include the results of cleanup study site investigations conducted pursuant to subsection (4) of this section, and preferred and alternate cleanup action proposals based on the results of the approved cleanup study plan.~~

~~(8) Sampling access. In cases where the person(s) responsible for cleanup is not able to secure access to sample sediments on lands subject to a cleanup study plan approved by the department, the department may facilitate negotiations or other proceedings to secure access to the lands. Requests for department facilitation of land access for sampling shall be submitted to the department in writing by the person(s) responsible for the cleanup action study~~

~~plan.~~)) (m) Any other information required by the department.

NEW SECTION

WAC 173-204-561 Sediment cleanup levels based on protection of human health. (1) **Applicability.** This section defines sediment cleanup objectives and cleanup screening levels for contaminants based on protection of human health. They are used to:

(a) Identify and assess the hazard of sites under WAC 173-204-510 and 173-204-520; and

(b) Establish sediment cleanup levels for sites and sediment cleanup units under WAC 173-204-560.

(2) **Sediment cleanup objectives.** Sediment cleanup objectives based on protection of human health shall be calculated using the following:

(a) Target risk levels. Sediment cleanup objectives based on protection of human health shall be at least as protective as the following sediment concentrations:

(i) Noncarcinogens. For noncarcinogens, sediment concentrations that are estimated to result in no acute or chronic toxic effects on human health as determined using a hazard quotient of one. If there are multiple noncarcinogens and/or exposure pathways at the site and the hazard index for the site exceeds one, then the sediment cleanup objectives shall be adjusted downward in accordance with WAC 173-340-708 or other methods approved by the department; and

(ii) Carcinogens. For known or suspected carcinogens, sediment concentrations for which the upper bound on the estimated lifetime excess cancer risk for individual carcinogens is less than or equal to one in one million (1×10^{-6}). If there are multiple carcinogens and/or exposure pathways at the site and the total lifetime excess cancer risk for the site exceeds one in one hundred thousand (1×10^{-5}), then the sediment cleanup objectives shall be adjusted downward in accordance with WAC 173-340-708 or other methods approved by the department.

(b) Reasonable maximum exposure. Sediment cleanup objectives and cleanup screening levels for contaminants based on protection of human health shall be calculated using reasonable maximum exposure scenarios that reflect the highest exposure that is reasonably expected to occur under current and potential future site use conditions.

(i) Default scenario. Except as provided under (b)(ii) of this subsection, the reasonable maximum exposure scenario for a site shall be tribal consumption of fish and shellfish. The department shall consider the following information on a site-specific basis when selecting or approving the exposure parameters used to represent the reasonable maximum exposure scenario:

(A) Historic, current, and potential future tribal use of fish

and shellfish from the general vicinity of the site.

(B) Relevant studies and best available science related to fish consumption rates.

(C) The total fish and shellfish in an individual's diet that is obtained, or has the potential to be obtained, from the general vicinity of the site. This value depends on the ability of the aquatic habitat within the general vicinity of the site to support a department approved fish and shellfish consumption rate under current and future site use conditions.

(D) The size of the site relative to the fish and shellfish home range.

(E) Other information determined by the department to be relevant.

(ii) Site-specific scenario. The department may approve an alternate reasonable maximum exposure scenario for the site in accordance with WAC 173-340-708 and 173-340-702 (14) through (16).

(c) Toxicity parameters. For toxicological parameters, values established by the United States Environmental Protection Agency (USEPA) and available through the Integrated Risk Information System (IRIS) data base shall be used. If the value for a toxicological parameter is not available through IRIS, other sources shall be used. When evaluating the appropriateness of using other sources, the department may use the hierarchy in the following document: USEPA, Office of Solid Waste and Emergency Response, Directive 9285.7-53, "Human Health Toxicity Values in Superfund Risk Assessments."

(3) **Cleanup screening levels.**

(a) General. Cleanup screening levels based on protection of human health shall be calculated using the factors in (b) of this subsection and in subsection (2)(b) through (c) of this section.

(b) Target risk levels. Cleanup screening levels based on protection of human health shall be at least as protective as the following sediment concentrations:

(i) Noncarcinogens. For noncarcinogens, sediment concentrations that are estimated to result in no acute or chronic toxic effects on human health as determined using a hazard quotient of one. If there are multiple noncarcinogens and/or exposure pathways at the site and the hazard index for the site exceeds one, then the cleanup screening levels shall be adjusted downward in accordance with WAC 173-340-708 or other methods approved by the department; and

(ii) Carcinogens. For known or suspected carcinogens, sediment concentrations for which the upper bound on the estimated lifetime excess cancer risk for individual carcinogens is less than or equal to one in one hundred thousand (1×10^{-5}). If there are multiple carcinogens and/or exposure pathways at the site and the total lifetime excess cancer risk for the site exceeds one in one hundred thousand (1×10^{-5}), then the cleanup screening levels shall be adjusted downward in accordance with WAC 173-340-708 or other methods approved by the department.

NEW SECTION

WAC 173-204-563 Sediment cleanup levels based on protection of the benthic community in freshwater sediment. (1) **Applicability.** This section defines sediment cleanup objectives and cleanup screening levels for contaminants based on protection of the benthic community in freshwater sediment. They are used to:

(a) Identify and assess the hazard of sites under WAC 173-204-510 and 173-204-520; and

(b) Establish sediment cleanup levels for sites and sediment cleanup units under WAC 173-204-560.

(2) **Freshwater sediment - Chemical criteria.** The chemical concentration criteria in Table VII establish the sediment cleanup objectives and cleanup screening levels chemical criteria for freshwater sediment. The criteria of this section shall apply to freshwater sediments for toxicity to the benthic community.

(a) The sediment cleanup objectives of this section establish a no adverse effects level, including no acute or chronic adverse effects, on the benthic community. Chemical concentrations at or below the sediment cleanup objectives correspond to sediment quality that results in no adverse effects to the benthic community.

(b) The cleanup screening levels of this section establish a minor adverse effects level, including acute or chronic effects, on the benthic community. Chemical concentrations at or below the cleanup screening level but greater than the sediment cleanup objective correspond to sediment quality that results in minor adverse effects to the benthic community. The freshwater chemical and biological cleanup screening levels establish minor adverse effects as the level above which station clusters of potential concern are defined and may be defined as potential cleanup sites for benthic community toxicity and at or below which station clusters of low concern are defined, per the procedures identified in WAC 173-204-510.

(c) The cleanup screening level chemical criteria is exceeded when the sediment chemical concentration for a single chemical is above the cleanup screening level in Table VII.

(d) The sediment cleanup objective chemical criteria is exceeded when the sediment chemical concentration for a single chemical is above the sediment cleanup objective in Table VII.

(e) For purposes of this section, where laboratory analysis indicates a chemical is not detected in a sediment sample, the detection limit and the practical quantitation limit shall be reported and shall be at or below the freshwater sediment cleanup objectives chemical criteria value in Table VII.

(f) Where chemical criteria in Table VII represent the sum of individual compounds or isomers, the following methods shall be applied:

(i) Where chemical analyses identify an undetected value for every individual compound/isomer, then the single highest detection limit shall represent the sum of the respective compounds/isomers; and

(ii) Where chemical analyses detect one or more individual compound/isomers, only the detected concentrations will be added to represent the group sum.

(g) The chemical criteria in Table VII represent concentrations in parts per million dry weight normalized.

(h) The total polycyclic aromatic hydrocarbon (PAH) criterion in Table VII represents the sum of the following polycyclic aromatic hydrocarbon compounds: 1-methylnaphthalene, 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(k)fluoranthene, chrysene, dibenz(ah)anthracene, fluoranthene, fluorene, indeno(123-cd)pyrene, naphthalene, phenanthrene, pyrene, total benzofluoranthenes (b+k+j).

(i) The total dichlorodiphenyldichloroethane (DDDs) criterion in Table VII represents the sum of the following DDD isomers: o,p'-DDD, p,p'-DDD.

(j) The total dichlorodiphenyldichloroethylene (DDEs) criterion in Table VII represents the sum of the following DDE isomers: o,p'-DDE, p,p'-DDE.

(k) The total dichlorodiphenyltrichloroethane (DDTs) criterion in Table VII represents the sum of the following DDT isomers: o,p'-DDT, p,p'-DDT.

(l) The total polycyclic chlorinated biphenyl (PCB) Aroclors criterion in Table VII represents the sum of the following Aroclors: 1016, 1221, 1242, 1248, 1254, 1260, 1268.

(m) When the listed chemical criteria in Table VII have a ">" (greater than) value for the cleanup screening level, the minor adverse affects level is unknown but is above the concentration shown. If test results show concentrations above this cleanup screening level, bioassays shall be conducted to evaluate potential benthic toxicity.

(n) The department recognizes that, in the following types of freshwater sediment environments, the chemical criteria in Table VII may not be predictive of benthic toxicity:

(i) Sediment with unique geochemical characteristics such as bogs and alpine wetlands;

(ii) Sediment where chemicals not listed in Table VII are suspected of causing benthic toxicity;

(iii) Sediment, porewater, or overlying water with unusual pH, total organic carbon, alkalinity, or other characteristics; and

(iv) Sediment impacted by metals mining, metals milling, or metals smelting.

In these types of freshwater sediment environments, alternative methods for characterizing benthic toxicity shall be required, unless the department determines the chemical criteria in Table VII is predictive of benthic toxicity. In order of preference, alternative methods include:

(A) Using the biological criteria of subsection (3)(a) through (h) of this section;

(B) Establishing site-specific chemical criteria using site chemistry and the biological criteria of subsection (3)(a) through (h) of this section;

(C) Other biological methods approved by the department; or
(D) Other approaches in accordance with WAC 173-204-130.

Table VII
Freshwater Sediment Cleanup Objectives and Cleanup Screening Levels Chemical Criteria

Chemical Parameter	Dry Weight Normalized	Dry Weight Normalized
	Sediment Cleanup Objective	Cleanup Screening Level
Conventional chemicals (mg/kg)		
Ammonia	230	300
Total sulfides	39	61
Metals (mg/kg)		
Arsenic	14	120
Cadmium	2.1	5.4
Chromium	72	88
Copper	400	1200
Lead	360	> 1300
Mercury	0.66	0.8
Nickel	26	110
Selenium	11	> 20
Silver	0.57	1.7
Zinc	3200	> 4200
Organic chemicals (µg/kg)		
4-Methylphenol	260	2000
Benzoic acid	2900	3800
Beta-Hexachlorocyclohexane	7.2	11
Bis(2-Ethylhexyl) phthalate	500	22000
Carbazole	900	1100
Dibenzofuran	200	680
Dibutyltin	910	130000
Dieldrin	4.9	9.3
Di-n-butyl phthalate	380	1000
Di-n-octyl phthalate	39	> 1100
Endrin Ketone	8.5	0
Monobutyltin	540	> 4800
Pentachlorophenol	1200	> 1200
Phenol	120	210
Tetrabutyltin	97	> 97

Chemical Parameter	Dry Weight Normalized	Dry Weight Normalized
	Sediment Cleanup Objective	**Cleanup Screening Level**
Total PCB Aroclors	110	2500
Total DDDs	310	860
Total DDEs	21	33
Total DDTs	100	8100
Total PAHs	17000	30000
Tributyltin	47	320
Bulk Petroleum Hydrocarbons (mg/kg)		
Total Petroleum Hydrocarbon (TPH)-Diesel	340	510
Total Petroleum Hydrocarbon (TPH)-Residual	3600	4400

(3) **Freshwater sediment - Biological criteria.** The biological effects criteria in Table VIII establish the sediment cleanup objectives and cleanup screening levels biological criteria for freshwater sediment. The criteria of this section shall apply to freshwater sediments for toxicity to the benthic invertebrate community.

(a) The sediment cleanup objective biological criteria for a sampling station is exceeded when one of the biological test results is above the sediment cleanup objective as described in Table VIII.

(b) The cleanup screening level biological criteria for a sampling station is exceeded when:

(i) Any two of the biological test results for a sampling station are above the sediment cleanup objective in Table VIII; or

(ii) One of the biological test results for a sampling station is above the cleanup screening level as described in Table VIII.

(c) The acute and chronic effects biological tests of Table IX shall be used to:

(i) Confirm designation of freshwater sediment for benthic toxicity. The department may require biological testing to confirm the designation of freshwater sediment which either passes or fails the chemical criteria in subsection (2) of this section. If required, the sediment shall be tested using the procedures in (d) of this subsection;

(ii) Evaluate the freshwater sediment cleanup objective and cleanup screening level for identifying sediment station clusters of potential concern for benthic toxicity using the procedures in WAC 173-204-510(2);

(iii) Establish the freshwater sediment cleanup objective or cleanup screening level for identifying station clusters of low

concern for benthic toxicity using the procedures in WAC 173-204-510(2).

(d) To designate sediment quality using biological criteria, a minimum of the following shall be included in the suite of biological tests for each sediment sample as described in Table IX:

(i) Two different species;

(ii) Three endpoints;

(iii) One chronic test; and

(iv) One sublethal endpoint.

(e) The appropriate control and reference sediment samples shall meet the performance standards described in Table VIII. Selection and use of reference sediment must be approved by the department and shall meet the performance standards of Table VIII. The department may approve a different performance standard based on latest scientific knowledge.

(f) When sediment is collected to conduct the biological tests in Table VIII or other biological tests approved by the department, the overlying site water shall be collected and analyzed for pH, alkalinity, hardness, and temperature.

(g) Use of alternate biological tests may be required by the department and shall be subject to the review and approval of the department using the procedures of WAC 173-204-130(4). When conditions in subsection (2)(n) of this section apply, and when determined appropriate by the department, the use of alternate biological tests in addition to the biological tests in Table IX shall be required and be subject to the review and approval by the department using the procedures of WAC 173-204-130(4).

(h) Any person who designates test sediments using the procedures of this section shall meet the sampling and testing plan requirements of WAC 173-204-600 and records management requirements of WAC 173-204-610. Test sediments designated using the procedures of this section shall be sampled and analyzed using methods approved by the department, and shall use an appropriate quality assurance/quality control program, as determined by the department.

(4) **Freshwater sediment - Other toxic, radioactive, biological, or deleterious substances criteria.** Other toxic, radioactive, biological, or deleterious substances in, or on, sediments shall be at or below levels which cause minor adverse effects to biological resources, as determined by the department. The department shall determine on a case-by-case basis the criteria, methods, and procedures necessary to meet this requirement.

Biological Test/ Endpoint*	Performance Standard*		Sediment Cleanup Objective for each biological test	Cleanup Screening Level for each biological test
	Control*	Reference		
Hyalella azteca				
10-day mortality	$M_C < 20\%$	$M_R < 25\%$	$M_T - M_C > 15\%$	$M_T - M_C > 25\%$
28-day mortality	$M_C < 20\%$	$M_R < 30\%$	$M_T - M_C > 10\%$	$M_T - M_C > 25\%$
28-day growth	$MIG_C > 0.15$ mg/individual	$MIG_R > 0.15$ mg/individual	$MIG_T/MIG_C < 0.75$	$MIG_T/MIG_C < 0.6$

Biological Test/ Endpoint*	Performance Standard*		Sediment Cleanup Objective for each biological test	Cleanup Screening Level for each biological test
	Control*	Reference		
Chironomus dilutus				
10-day mortality	$M_C < 30\%$	$M_R < 30\%$	$M_T - M_C > 20\%$	$M_T - M_C > 30\%$
10-day growth	$MIG_C > 0.48$ mg/individual	RF/CF > 0.8	$MIG_T/MIG_C < 0.8$	$MIG_T/MIG_C < 0.7$
20-day mortality	$M_C < 32\%$	$M_R < 35\%$	$M_T - M_C > 15\%$	$M_T - M_C > 25\%$
20-day growth	$MIG_C > 0.60$ mg/individual	RF/CF > 0.8	$MIG_T/MIG_C < 0.75$	$MIG_T/MIG_C < 0.6$

Table VIII. Freshwater sediment cleanup objectives, cleanup screening levels, and performance standards for each biological test. M = Mortality; C = Control; R = Reference; T = Test; F = Final; MIG = Mean Individual Growth at time final; mg = milligrams. An exceedance of the sediment cleanup objective and cleanup screening level requires statistical significance at $p = 0.05$. Reference performance standards are provided for sites where the department has approved a freshwater reference sediment site(s) and reference results will be substituted for control in comparing test sediments to criteria. *The department shall use the most updated American Society for Testing and Materials and EPA protocols and performance standards.

Species, biological test, and endpoint	Acute effects biological test	Chronic effects biological test	Lethal effects biological test	Sub-lethal effects biological test
Amphipod *Hyalella azteca*				
10-day Mortality	x		x	
28-day Mortality		x	x	
28-day Growth		x		x
Midge *Chironomus dilutus*				
10-day Mortality	x		x	
10-day Growth	x			x
20-day Mortality		x	x	
20-day Growth		x		x

Table IX. Types of freshwater sediment biological tests, species, and applicable endpoints. The department shall use the most current American Society for Testing and Materials and EPA protocols for establishing appropriate biological tests.

NEW SECTION

WAC 173-204-564 Sediment cleanup levels based on protection of higher trophic level species. (1) **Applicability.** This section defines sediment cleanup objectives and cleanup screening levels for contaminants based on protection of species at trophic levels not addressed in WAC 173-204-562 and 173-204-563 (hereafter called "higher trophic level species"). They are used to establish sediment cleanup levels for sites and sediment cleanup units under WAC 173-204-560.

(2) **Requirements.** Sediment cleanup objectives and cleanup screening levels based on protection of higher trophic level species shall not be established at concentrations that do not have the potential for minor adverse effects. To establish such concentrations, a site-specific ecological risk assessment meeting the requirement of this subsection must be performed.

(a) Approval by the department. Prior to performing the assessment, the department must approve the criteria, methods, and procedures to be used in the assessment.

(b) Species evaluated. The assessment must evaluate higher trophic level species that currently utilize, may potentially inhabit, or have historically inhabited the site.

(c) Factors considered. The assessment must consider factors such as:

(i) For higher trophic level species protected under the Federal Endangered Species Act, Title 77 RCW, or Title 79 RCW, a minor adverse effect means a significant disruption of normal behavior patterns such as breeding, feeding, or sheltering. For all other higher trophic level species, minor adverse effects are effects that impair the higher trophic level species reproduction, growth or survival.

(ii) The species life history, feeding and reproductive strategy, population numbers, range, and the potential for recruitment/immigration of individuals to the site.

(iii) The potential for the contaminant to bioaccumulate or biomagnify through the food chain. A contaminant will be presumed to have this potential if any of the following conditions are met:

(A) The contaminant is listed as a persistent, bioaccumulative, or toxic (PBT) contaminant on the department's PBT list in WAC 173-333-310; or

(B) The log of the contaminant's octonal-water partitioning coefficient is greater than 3.5 (log K_{ow} > 3.5).

(iv) Whether contaminants are present at the site that are known or suspected to have minor adverse effects on higher trophic level species.

AMENDATORY SECTION (Amending Order 90-41, filed 3/27/91, effective 4/27/91)

WAC 173-204-570 Sediment cleanup standards--General requirements. (1) **Applicability and purpose.** This section ((~~establishes the~~)) specifies the methods for establishing sediment cleanup standards ((~~requirements for cleanup actions required~~)) under ((~~authority of~~)) chapter ((~~90.48 and/or~~)) 70.105D RCW((~~, and/or this chapter, and describes the process to determine site-specific cleanup standards~~)) for sites where there has been a release or threatened release of contaminants to sediment. The methods specified in this section shall not be used to establish the sediment quality standards under Part III of this chapter.

(2) **Method for establishing sediment cleanup levels.** The sediment cleanup level is the concentration or level of biological effects of a contaminant in sediment determined by the department to be protective of human health and the environment.

(a) The sediment cleanup objective shall be used to establish the sediment cleanup level.

(i) **Upward adjustments.** The sediment cleanup level may be adjusted upward from the sediment cleanup objective based on the following site-specific factors:

(A) Whether it is technically possible to achieve the sediment cleanup level at the applicable point of compliance within the site or sediment cleanup unit; and

(B) Whether meeting the sediment cleanup level will have an adverse impact on the aquatic environment, taking into account the long-term positive effects on natural resources and habitat restoration and enhancement and the short-term adverse impacts on natural resources and habitat caused by cleanup actions.

(ii) **Limit on upward adjustments.** A sediment cleanup level may not be adjusted upward above the cleanup screening level.

(b) **Establishment of more stringent sediment cleanup levels.** The department may establish sediment cleanup levels more stringent than those established under (a) of this subsection when, based on a site-specific evaluation, the department determines that such levels are necessary to protect human health and the environment. The sediment cleanup level may not be established below the sediment cleanup objective.

(3) **Sediment cleanup objectives.** ((~~The sediment cleanup objective shall be to eliminate adverse effects on biological resources and significant health threats to humans from sediment contamination. The sediment cleanup objective for all cleanup actions shall be the sediment quality standards as defined in WAC 173-204-320 through 173-204-340, as applicable. The sediment cleanup objective identifies sediments that have no acute or chronic adverse effects on biological resources, and which correspond to no significant health risk to humans, as defined in this chapter.~~

~~(3) Minimum cleanup~~)) The sediment cleanup objective for a contaminant shall be established as the highest of the following levels:

(a) The lowest of the following risk-based levels:

(i) The concentration of the contaminant based on protection of human health as defined in WAC 173-204-561(2);

(ii) The concentration or level of biological effects of the contaminant based on benthic toxicity as defined in WAC 173-204-562 and 173-204-563, as applicable;

(iii) Concentration or level of biological effects of the contaminant not estimated to result in minor adverse effects to higher trophic level species as defined in WAC 173-204-564;

(iv) Requirements in other applicable, federal, state, and local laws;

(b) Natural background; and

(c) Practical quantitation limit.

(4) **Cleanup screening level.** The ((~~minimum cleanup level is the maximum allowed chemical concentration and level of biological effects permissible at the cleanup site to be achieved by year ten after completion of the active cleanup action.~~

~~(a) The minimum cleanup levels criteria of WAC 173-204-520 shall be used in evaluation of cleanup alternatives per the procedures of WAC 173-204-560, and selection of a site cleanup standard(s) per the procedures of this section.~~

~~(b) The Puget Sound marine sediment minimum cleanup level is established by the following:~~

~~(i) Sediments with chemical concentrations at or below the chemical criteria of Table III shall be determined to meet the minimum cleanup level, except as provided in (b)(iv) of this subsection; and~~

~~(ii) Sediments with chemical concentrations that are higher than the chemical criteria of Table III shall be determined to exceed the minimum cleanup level, except as provided in (b)(iii) of this subsection; and~~

~~(iii) Sediments with biological effects that do not exceed the levels of WAC 173-204-520(3) shall be determined to meet the minimum cleanup level; and~~

~~(iv) Sediments with biological effects that exceed the levels of WAC 173-204-520(3) shall be determined to exceed the minimum cleanup level; and~~

~~(v) Sediments which exceed the sediment minimum cleanup level human health criteria or the other toxic, radioactive, biological, or deleterious substances criteria or the nonanthropogenically affected criteria of WAC 173-204-520 as determined by the department, shall be determined to exceed the minimum cleanup level.~~

~~(4) Sediment cleanup standard. The sediment cleanup standards are established on a site-specific basis within an allowable range of contamination. The lower end of the range is the sediment cleanup objective as defined in subsection (2) of this section. The upper end of the range is the minimum cleanup level as defined in subsection (3) of this section. The site specific cleanup standards shall be as close as practicable to the cleanup objective but in no case shall exceed the minimum cleanup level. For any given cleanup action, either a site-specific sediment cleanup standard shall be defined, or multiple site unit sediment cleanup~~

~~standards shall be defined. In all cases, the cleanup standards shall be defined in consideration of the net environmental effects (including the potential for natural recovery of the sediments over time), cost and engineering feasibility of different cleanup alternatives, as determined through the cleanup study plan and report standards of WAC 173-204-560.~~

~~(5) All cleanup standards must ensure protection of human health and the environment, and must meet all legally applicable federal, state, and local requirements.~~)) cleanup screening level for a contaminant shall be established as the highest of the following levels:

(a) The lowest of the following risk-based levels:

(i) The concentration of the contaminant based on protection of human health as defined in WAC 173-204-561(3);

(ii) The concentration or level of biological effects of the contaminant based on benthic toxicity as defined in WAC 173-204-562 through 173-204-563, as applicable;

(iii) The concentration or level of biological effects of the contaminant that are not estimated to result in minor adverse effects to higher trophic level species as defined in WAC 173-204-564;

(iv) Requirements in other applicable federal, state and local laws;

(b) Regional background as defined in subsection (5) of this section; and

(c) Practical quantitation limit.

(5) **Regional background.** Regional background is the concentration of a contaminant within a department-defined geographic area that is primarily attributable to atmospheric deposition or diffuse nonpoint sources not attributable to any source. Regional background for a contaminant shall be established by the department in accordance with the requirements of this subsection.

(a) In an area with no established regional background, a person is required to provide samples or demonstrate that sufficient data exists. The department will determine if the data is sufficient to establish a regional background.

(b) Sampling of contaminants within a department-defined geographic area may be conducted to establish a regional background. Calculation of regional background for a contaminant must exclude samples from areas with an elevated level of contamination due to the direct impact of known or suspected contaminant sources, including areas within a sediment cleanup unit or depositional zone of a discharge.

(c) The department will determine the appropriate statistical analyses, number and type of samples, and analytical methods to establish a regional background on a case-by-case basis.

(d) If a water body is not beyond the direct influence of a significant contaminant source, the department may use alternative geographic approaches to determine regional background for a contaminant. Several factors must be evaluated when determining an alternate geographic approach including:

(i) Proximity of sampling locations to the site;

(ii) Similar geologic origins as the site sediment;

(iii) Similar fate and transport and biological activities as the site; and

(iv) Chemical similarity with the site.

(6) **Compliance monitoring.**

(a) **General.** The methods used to determine compliance with sediment cleanup standards shall be determined by the department on a site-specific basis.

(b) **Use of tissue analysis.** At the department's discretion, and when determined to provide appropriate protection for human health or the environment, contaminants in tissue may be used to identify and screen chemicals of concern in sediment during the remedial investigation/feasibility study and to evaluate compliance with sediment cleanup standards.

(i) **Risk assessment requirements.** Assessments of risk to human health or the environment from tissue chemical concentrations must be consistent with the procedures of WAC 173-204-560, 173-204-561 and 173-204-564.

(ii) **Species and tissue type selection.** The methods and procedures used to select the appropriate species and tissue types shall be determined by the department on a site-specific basis.

(7) **Data reporting.** Any person(s) who samples sediment and/or tissue to assess compliance with Part V of this chapter shall comply with the following conditions:

(a) Where analytical results indicate a chemical is not detected in a sample, the data shall be reported as "non detect" at the method detection limit and the method detection limit reported.

(b) Where analytical results indicate a chemical is detected between the method detection limit and the practical quantitation limit in a sample, the data shall be reported and qualified as "estimated."

NEW SECTION

WAC 173-204-575 Cleanup action decisions. (1) **Purpose.** The department shall use the remedial investigation/feasibility study report and other appropriate information to establish sediment cleanup standards and select cleanup actions for a site or sediment cleanup unit. These decisions must be consistent with this chapter and the underlying administrative authority.

(2) **State cleanup sites.** For sites or sediment cleanup units being cleaned up under the authority of chapter 70.105D RCW, the department shall prepare a cleanup action plan documenting its cleanup decisions. The cleanup action plan shall be prepared consistent with the pertinent requirements and procedures specified in WAC 173-340-380. The decisions in the cleanup action plan shall be incorporated into any enforcement order, agreed order, consent decree, or other binding legal document issued under chapter

70.105D RCW. The public review process for the department's decisions shall comply with the requirements and procedures in chapter 173-340 WAC.

(3) **Federal cleanup sites.** For sites or sediment cleanup units being cleaned up under the authority of the federal Comprehensive Environmental Response, Compensation and Liability Act; (42 U.S.C. §§ 9601 et seq.), a record of decision, administrative order, consent decree, or other binding legal document issued under the federal cleanup law may be used by the department to meet the requirements of this section provided:

(a) The cleanup action is consistent with the requirements in this chapter;

(b) The state has concurred with the cleanup action; and

(c) An opportunity was provided for the public to comment on the cleanup action.

(4) **Other authorities.** For sites or sediment cleanup units being cleaned up under other authorities, the department's cleanup decisions shall be incorporated into the permit, administrative order, or other appropriate binding legal document. The public review process, and documentation for the department's decisions, shall be consistent with the requirements and procedures for the underlying administrative authority.

(5) **Public involvement.** The department shall provide public notice and an opportunity for review and comment on its sediment cleanup decisions under this chapter.

(a) Where the underlying administrative authority used to implement the cleanup action provides an adequate public notice and comment opportunity prior to implementation of the cleanup action, separate public notice and comment is not required under this chapter.

(b) If the underlying administrative authority does not provide adequate public notice and comment opportunity, then the department shall provide for this prior to implementation of the cleanup action.

(c) Where more than one public notice and comment period is needed to fulfill the requirements of this chapter and those in other laws, the department may combine public notice and comment periods, hearings, and other public involvement opportunities to streamline the public review process.

AMENDATORY SECTION (Amending Order 90-41, filed 3/27/91, effective 4/27/91)

WAC 173-204-580 Selection of cleanup actions ((~~decision~~)).

((~~(1) Each person performing a cleanup action to meet the intent of this chapter shall comply with the standards of WAC 173-204-560(7), Cleanup study report. Except for cleanups conducted under chapter 70.105D RCW, the department shall review each cleanup study report~~

and issue a written approval of one or more of the cleanup action alternatives described in the cleanup study report, or issue a written disapproval of all alternatives described in the cleanup study report. The department's approval of one or more cleanup study report cleanup action alternatives shall constitute the cleanup decision and shall be referenced in one or more permit or administrative authorities established under chapter 90.48 or 70.105D RCW, Section 401 of the federal Clean Water Act, chapter 173-225 WAC, establishment of implementation procedures of application for certification, or other administrative authorities available to the department. The department may approve the cleanup alternative recommended in the cleanup study report, may approve a different alternative discussed in the report, or may approve an alternative(s) with appropriate conditions. The department's disapproval of all cleanup study report cleanup action alternatives shall be issued by certified mail, return receipt requested, to the cleanup action proponent(s). The procedures for department review of the cleanup study report and selection of a cleanup action under chapter 70.105D RCW shall be in accordance with the procedures of chapter 173-340 WAC.

(2) All cleanup actions conducted under this chapter shall meet the following requirements:

(a) Receive department review and written approval of the preferred and/or alternate cleanup actions and necessary sediment recovery zones proposed in the cleanup study report prior to implementing a cleanup action(s);

(b) Achieve a degree of cleanup that is protective of human health and the environment;

(c) Achieve compliance with applicable state, federal, and local laws;

(d) Achieve compliance with site cleanup standards;

(e) Achieve compliance with sediment source control requirements pursuant to WAC 173-204-400 through 173-204-420, if necessary;

(f) Provide for landowner review of the cleanup study plan and report, and consider public concerns raised during review of the draft cleanup report; and

(g) Provide adequate monitoring to ensure the effectiveness of the cleanup action.

(3) Cleanup time frame.

(a) The cleanup action selected shall provide for a reasonable time frame for completion of the cleanup action, based on consideration of the following factors:

(i) Potential risks posed by the site to biological resources and human health;

(ii) Practicability of achieving the site cleanup standards in less than a ten-year period;

(iii) Current use of the site, surrounding areas, and associated resources that are, or may be, affected by the site contamination;

(iv) Potential future use of the site, surrounding areas, and associated resources that are, or may be, affected by the site contamination;

~~(v) Likely effectiveness and reliability of institutional controls;~~

~~(vi) Degree of, and ability to control and monitor, migration of contamination from the site; and~~

~~(vii) Natural recovery processes which are expected to occur at the site that will reduce concentrations of contaminants.~~

~~(b) The department may authorize cleanup time frames that exceed the ten-year period used in deriving the site cleanup standards of WAC 173-204-570(4) where cleanup actions are not practicable to accomplish within a ten-year period.~~

~~(4) In evaluating cleanup action alternatives, the department shall consider:~~

~~(a) The net environmental effects of the alternatives, including consideration of residual effects, recovery rates, and any adverse effects of cleanup construction or disposal activities;~~

~~(b) The relative cost-effectiveness of the alternatives in achieving the approved site cleanup standards; and~~

~~(c) The technical effectiveness and reliability of the alternatives.~~

~~(5) Public participation. The department shall provide opportunity for public review and comment on all cleanup action study plans, reports, and decisions reviewed and approved by the department, for cleanup actions conducted under this chapter.~~

~~(6) Land access. In cases where the person(s) responsible for cleanup is not able to secure access to lands subject to a cleanup action decision made pursuant to this section, the department may facilitate negotiations or other proceedings to secure access to the lands. Requests for department facilitation of land access shall be submitted to the department in writing by the person(s) named in the cleanup action approval.~~)) (1) **Purpose.** This section establishes the minimum requirements and criteria for selecting sediment cleanup actions under chapter 70.105D RCW. This section applies both to sediment-only cleanup sites and to the sediment portion of any combined upland and sediment cleanup site.

(2) **General requirements.** The department shall review and provide written approval of cleanup actions and sediment recovery zones prior to implementation of a cleanup action.

(3) **Minimum requirements for sediment cleanup actions.** The requirements in this subsection and the requirements for establishing the sediment cleanup standard under WAC 173-204-560 shall be considered concurrently. All sediment cleanup actions conducted under this chapter shall meet the following minimum requirements:

(a) Protect human health and the environment;

(b) Comply with all applicable state, federal, and local laws;

(c) Comply with the sediment cleanup standards specified in WAC 173-204-560 through 173-204-564;

(d) Use permanent solutions to the maximum extent practicable, as defined in subsection (4) of this section;

(e) Provide for a reasonable restoration time frame as defined in subsection (5) of this section. Preference shall be given to alternatives that restore the site sooner. Unless otherwise

determined by the department, cleanup actions that achieve compliance with the sediment cleanup standards at a site or sediment cleanup unit within ten years from the start of the cleanup action shall be presumed to have a reasonable restoration time frame.

(f) Where source control measures are proposed as part of a cleanup action, preference shall be given to alternatives with source control measures that are more effective in minimizing the accumulation of contaminants in sediment due to current and future discharges;

(g) If a sediment recovery zone is part of the cleanup action, meet the requirements in WAC 173-204-590;

(h) Cleanup actions shall not rely primarily on monitored natural recovery or institutional controls and monitoring where it is technically possible to implement a more permanent cleanup action. Where institutional controls are used, they must comply with WAC 173-340-440 and preference shall be given to the types of institutional controls with a demonstrated ability to control exposures and ensure the integrity of the cleanup action;

(i) Provide an opportunity for review and comment by affected landowners and the general public, and consider concerns identified in these comments; and

(j) Provide adequate monitoring to ensure the effectiveness of the cleanup action. Preference will be given to alternatives with a greater ability to monitor the effectiveness of the cleanup action, institutional controls, and any migration of residual contamination; and

(k) Provide for periodic review to determine the long-term effectiveness and protectiveness of remedies that utilize containment, enhanced natural recovery, monitored natural recovery, institutional controls or a sediment recovery zone. The periodic review shall follow the process and requirements specified in WAC 173-340-420.

(4) **Using permanent solutions to the maximum extent practicable.** This subsection describes the requirements for determining whether a cleanup action consists of permanent solutions to the maximum extent practicable, as required under subsection (3)(d) of this section. When making this determination, the process and criteria in WAC 173-340-360 shall be used. However, when assessing the relative degree of long-term effectiveness of cleanup action alternatives, the following hierarchy, in descending order, shall be used as a guide in place of the hierarchy in WAC 173-340-360:

(a) Source controls in combination with other cleanup technologies;

(b) Dredging and beneficial reuse of the sediments;

(c) Dredging and treatment to immobilize, destroy, or detoxify contaminants;

(d) In-situ treatment to immobilize, destroy, or detoxify contaminants;

(e) Dredging and disposal in an upland engineered facility that minimizes subsequent releases and exposures to contaminants;

(f) Dredging and disposal in a nearshore, in-water, confined aquatic disposal facility;

(g) Containment of contaminated sediments in-place with an engineered cap;

(h) Dredging and disposal at an open water disposal site approved by the department;

(i) Enhanced natural recovery;

(j) Monitored natural recovery; and

(k) Institutional controls and monitoring.

(5) **Providing a reasonable restoration time frame.** This subsection describes the requirements and procedures for determining whether a cleanup action provides a reasonable restoration time frame, as required under subsection (3)(e) of this section.

(a) **Factors.** When determining whether a cleanup action provides a reasonable restoration time frame, the following factors shall be considered:

(i) Potential risks posed by the site or sediment cleanup unit to biological resources and human health;

(ii) Practicability of achieving the site or sediment cleanup unit-specific cleanup standards in less than a ten-year period;

(iii) Current use of the site or sediment cleanup unit, surrounding areas, and associated resources that are, or may be, affected by residual contamination;

(iv) Potential future use of the site or sediment cleanup unit, surrounding areas, and associated resources that are, or may be, affected by residual contamination;

(v) Likely effectiveness and reliability of institutional controls;

(vi) Degree of, and ability to control and monitor migration of residual contamination; and

(vii) The degree to which natural recovery processes are expected to reduce contamination.

(b) **Time frames longer than ten years.** The department must authorize any restoration time frame longer than ten years after the start of the cleanup action. To be authorized, the proponent must demonstrate that cleanup actions cannot practicably achieve sediment cleanup standards at the site or sediment cleanup unit within ten years after the start of the cleanup action. If the department approves a longer restoration time frame, the department must also establish a sediment recovery zone in accordance with WAC 173-204-590.

AMENDATORY SECTION (Amending WSR 96-02-058, filed 12/29/95, effective 1/29/96)

WAC 173-204-590 Sediment recovery zones. (1) **Applicability.** ((~~The purpose of this section is to set forth the requirements for~~

~~establishment and monitoring of sediment recovery zones to meet the intent of sediment quality dilution zones authorized pursuant to RCW 90.48.520.~~

~~The standards of this section are applicable to cleanup action decisions made pursuant to WAC 173-204-580 where selected actions leave in place marine, low salinity, or freshwater sediments that exceed the applicable sediment quality standards of WAC 173-204-320 through 173-204-340.~~)) This section specifies requirements governing the establishment and monitoring of sediment recovery zones. Sediment recovery zones are necessary at sites and sediment cleanup units where the department has determined the selected cleanup actions cannot practicably achieve sediment cleanup standards within a ten year restoration time frame from the start of the cleanup action.

(2) **General requirements.** Authorization of a sediment recovery zone by the department shall require compliance with the following general requirements:

(a) ((~~The sediment recovery zone shall be determined by application of the department's sediment recovery zone computer models "CORMIX," "PLUMES," and/or "WASP," or an alternate sediment recovery zone model(s) approved by the department under WAC 173-204-130(4) as limited by the standards of this section and the department's best professional judgment.~~

~~(b)~~)) Establishment or expansion of a sediment recovery zone shall not be used as a substitute for active cleanup actions, when such actions are determined to be practicable under WAC 173-204-570;

(b) The areal extent of the sediment recovery zone shall not extend beyond the area within the site or sediment cleanup unit where the department has determined the cleanup action cannot practicably achieve sediment cleanup standards within a ten year restoration time frame from the start of the cleanup action;

(c) The chemical concentrations within the sediment recovery zone shall be as close to the sediment cleanup standard as practicable;

(d) Best management practices shall be used for activities resulting in diffuse, nonpoint discharges within the sediment recovery zone;

(e) The department shall ((~~provide specific authorization for a~~)) describe the sediment recovery zone ((~~within the written approval of the cleanup study report and cleanup decision required~~)) in the cleanup action plan, or other decision document prepared under WAC 173-204-580.

((~~(c) The time period during which a sediment recovery zone is authorized by the department shall be so stated in the department's written approval of the cleanup study report and cleanup decision.~~

~~(d) The department's written sediment recovery zone~~)) Specific authorization for the sediment recovery zone must be provided in an enforceable document (permits, orders, settlements, etc.); and

(f) Any authorization for a sediment recovery zone shall identify the legal location and landowners of property proposed as a sediment recovery zone.

((~~(e) Operational terms and conditions for the authorized~~

~~sediment recovery zone pursuant to subsection (5) of this section shall be maintained at all times.~~

~~(f) Where cleanup is not practicable pursuant to the analysis under WAC 173-204-570(4),~~)) (3) **Criteria.** When considering whether to authorize a sediment recovery zone, the department shall consider the criteria in subsection (2) of this section and the following factors:

(a) Limitation of any modeling used to project the areal extent and time period needed for the sediment recovery zone;

(b) Potential risks posed by the sediment recovery zone to human health and the environment;

(c) The technical practicability of elimination or reduction of the size and/or degree of chemical contamination and/or level of biological effects within the proposed sediment recovery zone;

(d) Current and potential use of the sediment recovery zone, surrounding areas, and associate resources that are, or may be, affected by releases from the zone; and

(e) The need for institutional controls or other site use restrictions to reduce site contamination risks to human health.

(4) **Duration.** Sediment recovery zones may be authorized for ((~~periods in excess~~)) an initial duration of up to ten years and subsequently reviewed and extended in increments not to exceed ten years.

((~~(3)~~)) (a) The areal extent and time period during which a sediment recovery zone is projected to be necessary will be based on the source loading rate and the recovery rate. The source loading rate and recovery rate shall be determined by application of the department's models "CORMIX," "PLUMES," and/or "WASP," or an alternate method approved by the department under WAC 173-204-130(4), as limited by the requirements of this section and the department's best professional judgment.

(b) The time period during which a sediment recovery zone is authorized by the department shall be stated in the cleanup action plan, or other decision document prepared under WAC 173-204-580, and implementing documents.

(5) **Operational terms and conditions.** Operational terms and conditions for the authorized sediment recovery zone shall be maintained at all times. These terms and conditions may include:

(a) Chemical, bioassay, or tissue monitoring of discharges, receiving water column, organisms, and sediment;

(b) Confirmation of sediment source(s) loading rates, chemical quality and biological toxicity;

(c) Monitoring contaminant bioaccumulation; and

(d) Ongoing evaluation of the water quality, sediment quality, biological conditions, and human health impacts within and adjacent to the proposed or authorized sediment recovery zone.

(6) **Trespass not authorized.** A sediment recovery zone authorization issued by the department under the authority of chapter ((~~90.48 or~~)) 70.105D RCW, or other administrative means available to the department, does not constitute authorization to trespass on lands not owned by the applicant. These requirements do not address, and in no way alter, the legal rights,

responsibilities, or liabilities of the permittee or landowner of the sediment recovery zone for any applicable requirements of proprietary, real estate, tort, and/or other laws not directly expressed as a requirement of this chapter.

((~~(4)~~)) (7) **Public involvement.** Prior to authorization, the department shall make a reasonable effort to identify and notify all landowners affected by the proposed sediment recovery zone. The department shall issue a sediment recovery zone notification letter to any person it believes to be a potentially affected landowner, the Washington state department of natural resources, the U.S. Army Corps of Engineers, affected port districts, local governments with land use planning authority for the area, and other parties determined appropriate by the department. The notification letter shall be sent by certified mail, return receipt requested, or by personal service. The notification letter shall provide:

(a) The name of the person the department believes to be the affected landowner; ((~~and~~))

(b) The names of other affected landowners to whom the department has sent a proposed sediment recovery zone notification letter; ((~~and~~))

(c) The name of the sediment recovery zone applicant; ((~~and~~))

(d) A general description of the proposed sediment recovery zone, including the chemical(s) of concern by name and concentration, and the area of affected sediment; ((~~and~~))

(e) The determination of the department concerning whether the proposed sediment recovery zone application meets the ((~~standards~~)) requirements of this section; ((~~and~~))

(f) The intention of the department whether to authorize the proposed sediment recovery zone; and

(g) ((~~Notification that the affected landowner may~~)) Invite comments on the proposed sediment recovery zone. Any landowner comments shall be submitted in writing to the department within thirty days from the date of receipt of the notification letter, unless the department provides an extension.

((~~(5) As determined necessary by the department, operational terms and conditions for the sediment recovery zone may include completion and submittal to the department of discharge effluent and/or receiving water column and/or sediment chemical monitoring studies and/or bioassays to evaluate ongoing water quality, sediment quality, and biological conditions within and adjacent to the proposed or authorized sediment recovery zone.~~

~~(6)~~)) (8) **Enforcement.** The department shall review all data or studies conducted ((~~in accordance with~~)) under a sediment recovery zone authorization to ensure compliance with the terms and conditions of the authorization and the ((~~standards~~)) requirements of this section. Whenever, in the opinion of the department, the operational terms and conditions of a sediment recovery zone or the ((~~standards~~)) requirements of this section are violated or there is a potential to violate the sediment recovery zone authorization or the ((~~standards~~)) requirements of this section, or new information or a reexamination of existing information indicates the sediment

recovery zone is no longer appropriate, the department may at its discretion:

(a) Require additional chemical or biological monitoring as necessary;

(b) Revise the sediment recovery zone authorization as necessary to meet the ((~~standards~~)) requirements of this section;

(c) Require active contaminated sediment maintenance actions, including additional cleanup in accordance with the standards of WAC 173-204-500 through 173-204-580; and/or

(d) Withdraw the department's authorization of the sediment recovery zone.

NEW SECTION

The following section of the Washington Administrative Code is decodified as follows:

Old WAC Number	New WAC Number
173-204-520	173-204-562
173-204-530	173-204-520
173-204-540	173-204-530
173-204-550	173-204-540
173-204-560	173-204-550
173-204-570	173-204-560
173-204-580	173-204-570